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¹ Morris, R. G., and Hall, C. E. A preliminary report on the use of Mercorten in Bovine Ketosis. J. A. V. M. A. 128(182) (Feb. 1) 1956.

² Siegrist, J. C. Newer advances in corticoid therapy. Vet. Med. 31:310 (July) 1956.

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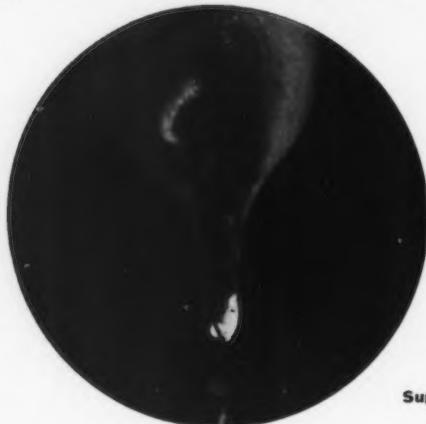
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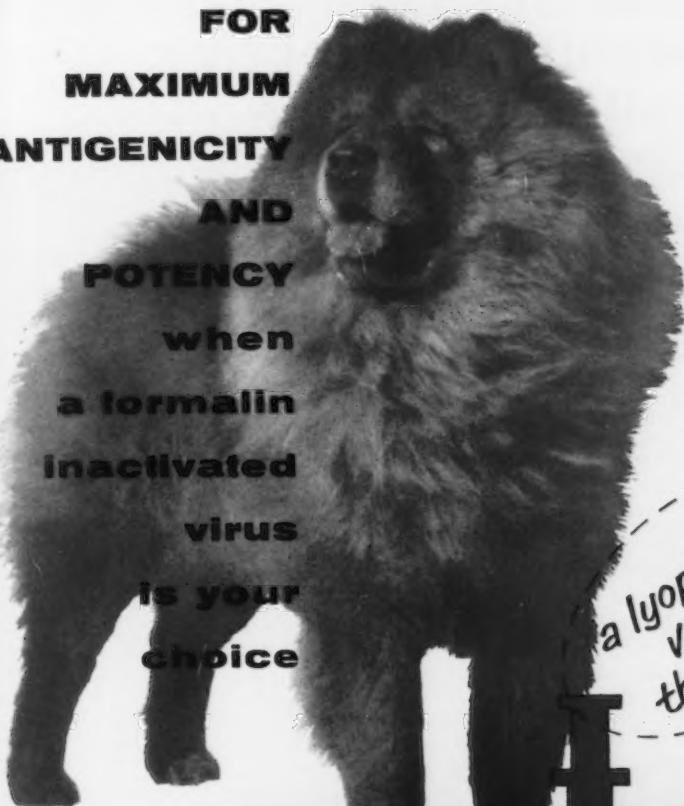
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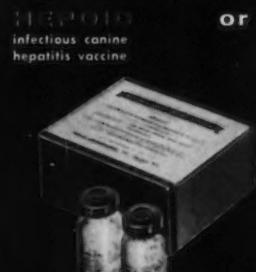


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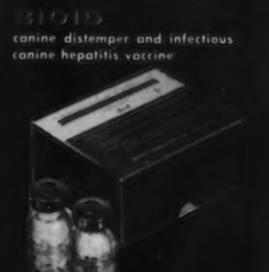
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"Seventeen cases were treated with 40 percent dextrose solution, 250 cc. to 500 cc. of this solution were injected intravenously once or twice daily. The amount and frequency of the dose depended on the severity of the case. When nervous symptoms were noticed, one-half ounce capsules of chloral hydrate were given daily. When lack of appetite was present, liberal doses of a stimulating tonic were given. All cases were fed from one pint to one quart of molasses. Cows that would not eat it on grain were given one quart per day with a drench bottle."

Fincher, M. G.; Hayden, C. E., and Hall, A. G.:
Cornell Vet. 30:197 (April) 1940.

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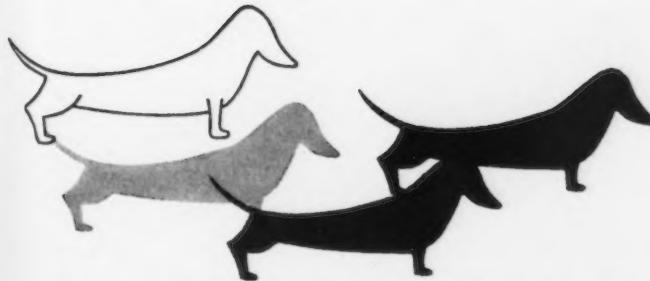
"The dosage employed ranged from 50 mg. to 100 mg. Blood glucose values increased rapidly after treatment accompanied by a decrease in the ketone bodies.

"87 per cent of the cows with uncomplicated ketosis recovered with one treatment."

Link, R. P.; Newton, D. I., and Huber, W. G.:
Paper presented at 93rd Ann. Meeting, A.V.M.A.,
Oct. 15-18, 1956, San Antonio, Texas.

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<i>English Thoroughbred</i> excise lachrymal duct	20 cc. I.V. at close of surgery	"...in 10 minutes bleeding had come to a practical stop...."
<i>German Shepherd</i> penal sarcoma	hemorrhage 5 hours postoperatively—3 cc. I.V.	"Bleeding lessened in 10 minutes...ceased in 20 minutes."
<i>Thoroughbred Gelding*</i> amputate scirrhouos cord	bleeding despite ligatures— 10 cc. I.V., 10 cc. I.M.	"Seeping hemorrhage was arrested in 10 to 15 minutes."
<i>Terrier</i> panhysterectomy	Profuse bleeding during surgery —2 cc. I.M.; 2 cc. I.V. 10 minutes later	"...marked reduction in hemorrhage within 4 minutes...hemostasis in 10 minutes."

***N.B.** A second thoroughbred under identical conditions but without KOAGAMIN: postoperative seeping hemorrhage—1/2 hour; oozing—an additional 2 hours.

KOAGAMIN, an aqueous solution of oxalic and malonic acids for parenteral use, is supplied in 20-cc. diaphragm-stoppered vials.

1. Rachman, M., and Frucht, T. R.: *Vet. Med.* 49:341, 1954.



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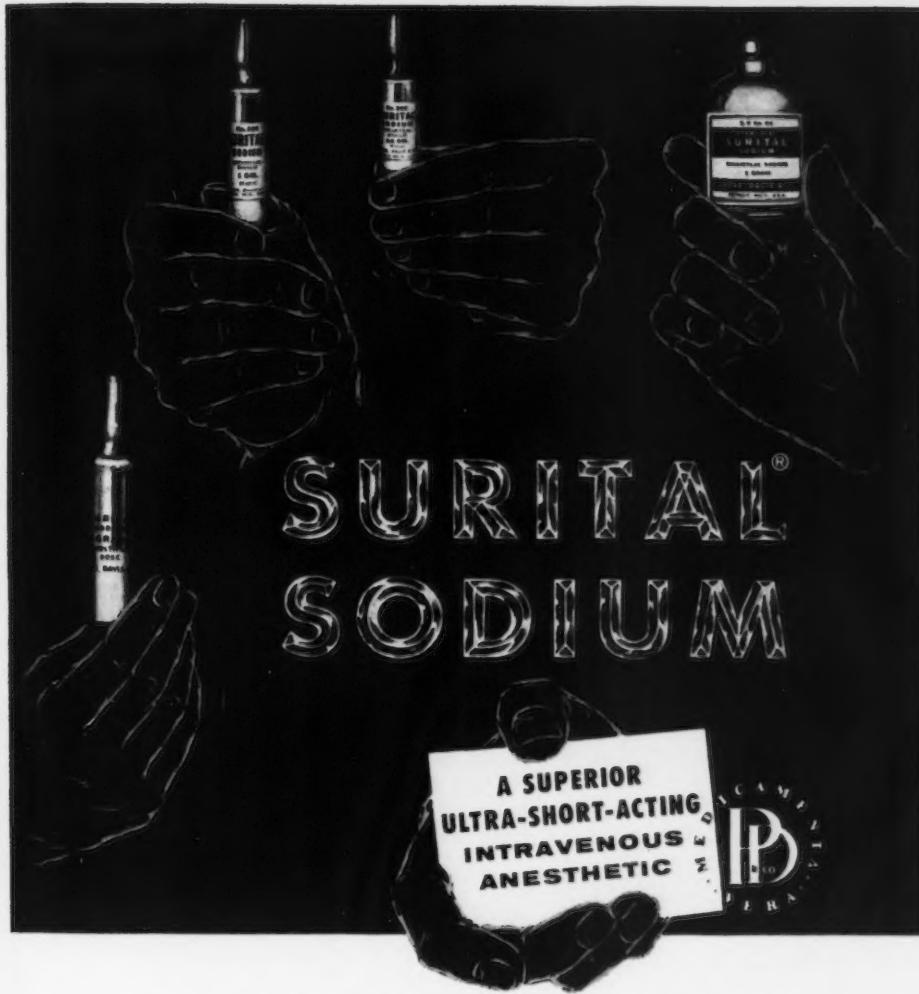


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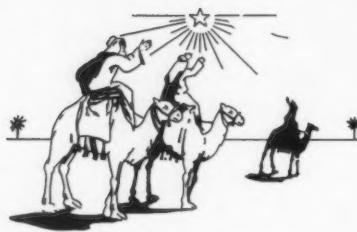
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Department of Veterinary Medicine

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Christmas 1956



This year among the old familiar trimmings on my Christmas tree there will hang a new Silver Star, which will shine brightly, brighter than all the other trimmings, because it will remind me of all the good things the California State Veterinary Medical Association members have accomplished during the year of 1956 and it will remind me that I had a part in it and that I consider it a privilege to be a part of the California State Veterinary Medical Association.

With the true meaning of Christmas in mind, we can face the new year believing as always in the good in mankind and the good in this world. We can face the new year with determination, faith and confidence in the future.

**A Joyous Christmas
AND A
Happy New Year
TO ALL**

Sincerely,
Charles S. Travers

THE CALIFORNIA VETERINARIAN

NOVEMBER-DECEMBER, 1956

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Number 6

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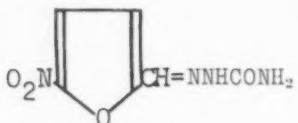
Furacin*

GEORGE B. BELLOFF, V.M.D., Eaton Laboratories, Norwich, New York

In this atomic age of medicine the tremendous strides made in the field of chemotherapy are apt to be clouded over by the enigma of nuclear fission. Lest we forget, it might be well to call to mind that we have witnessed during our own lifetime the advent of the sulfonamides, the antibiotics and nitrofurans.

The science of specific drug therapy and the search for chemotherapeutic agents were given tremendous impetus by Ehrlich about 50 years ago when he discovered the effectiveness of organic arsenicals in the treatment of syphilis. However, intensive research did not begin until the second decade of this century. The Germans and French were first with the discovery of sulfonamides; the English followed closely with the first antibiotic; and finally, as the only purely American contribution, came the chemotherapeutic nitrofurans.

The first nitrofuran which became available for medical use was Furacin. This compound has the following formula:



5-nitro-2-furaldehyde semicarbazone
(nitrofurazone N.F. or Furacin®)

Furacin is a yellow, crystalline compound which is stable under the usual environmental conditions. Upon prolonged exposure to strong light it darkens. For this reason it is advisable to keep it out of the direct rays of the sun. Furacin, and its solutions at a pH of 6 to 7, can be autoclaved at 15 pounds steam pressure for 15 minutes without significant decomposition. It is soluble in water to 0.02% or 20 mg. per 100 ml., but it is much more soluble in the Carbowaxes and other organic solvents.

Many gram-negative and gram-positive organisms are sensitive to Furacin. The antibacterial spectrum includes *Aerobacter aerogenes*, *Corynebacterium* species, *Escherichia coli*, *Micrococcus (Staph.) pyogenes*, *aureus* and *albus*, *Proteus vulgaris*, *Pseudomonas* species; and *Streptococcus agalactiae*, *dysgalactiae*, *faecalis* and *überis*. Furacin maintains its effectiveness in the presence of milk, pus, blood and serum.

The mechanism by which Furacin exerts its antibacterial activity differs completely from those of other antibacterial agents. Some antibiotics apparently depress cell reproduction and sulfonamides block assimilation of para-

*Condensed from a presentation before the Small Animal Section, CSVMA Midwinter Conference, Davis, Jan. 23-25, 1956.

aminobenzoic acid. Furacin, on the other hand, acts by blocking the acetylation of co-enzyme A essential in the pyruvate to citrate step in the degradation of glucose in the Krebs' cycle.

Furacin in Veterinary Medicine

The Topical Application of Furacin in Veterinary Medicine—Furacin is indicated for the treatment of wounds, burns, pyodermas, ulcers, skin grafts, osteomyelitis, rhinitis, sinusitis, conjunctivitis, otitis, cervicitis, vaginitis, pyometra and urethritis.

Furacin in its water-soluble bases is completely soluble in body fluids. These properties make it ideally suited for the treatment of ophthalmalmitis and postoperative therapy.

Conjunctivitis—One investigator¹ treated 10 dogs and 7 cats affected with purulent conjunctivitis. The eyes of the affected animals were cleansed with a cotton pledget which had previously been soaked in boric acid solution. Following this, Furacin Soluble Powder was insufflated onto the surface of the affected eye 2 to 3 times a day. He reported that the purulent discharge lessened after 24 hours and was no longer present 3 to 4 days following the initial application. Following recovery, periodic examinations were made for a period of 1 to 3 months and no recurrence of the disease was noted. Complete recovery was obtained in all 17 animals treated for ophthalmalmitis.

Abscesses—Wilson² treated subcutaneous abscesses in 27 dogs and 19 cats. He first lanced and drained the abscess. Following this, Furacin Soluble Powder was insufflated into the abscess cavity. It was noted that it dissolved readily in pus, blood and serum. Following the first application, there was very little drainage and healing occurred promptly without complications in all cases. Medication was continued twice daily until healing was completed. Abscesses of the oral cavity also responded well.

Ophthalmic Trauma—Traumatic injuries to the eye of 7 dogs were treated by insufflating Furacin Soluble Powder onto the injured area twice daily. Rapid responses were elicited and very little scarring occurred in the cornea.

Post-Operative Use—Wilson² used Furacin extensively following major operations. In hystero-oophorectomies, Furacin Soluble Powder was insufflated liberally into the peritoneal cavity and onto the abdominal incision immediately prior to closure of the wound. In a series of 49 dogs and 33 cats, healing by first intention occurred in all cases except in 1 dog which developed a small stitch abscess. When this abscess was lanced and the Soluble Pow-

¹See page 18 for references.

der applied an uneventful recovery followed. No case showed any symptoms of local or systemic toxicity following the use of Furacin.

Surgical Operations on the Aural Appendages of Dogs—Furacin has been used routinely following essential operations on the aural appendages of dogs with good success. In all cases, healing occurred within five to seven days with minimal granulation tissue formation. The Soluble Powder has been applied twice daily in these cases.

Otitis Externa—Due to the drying effect of Furacin Soluble Powder, it is particularly useful in those cases of otitis externa in which exudate is present.

A well known textbook on veterinary dermatology,³ discussing otitis externa in dogs, states that "among the commercial preparation may be recommended: Furacin. . . . Good results have been obtained with . . . Furacin. . . ."

Those of us who have treated canine otitis externa know the frustration in the case which does not respond to any type of medication and the ultimate haven of the LaCroix operation. Although our efforts are often heroic, our results at times are extremely disappointing. There is no one medication which is the final answer to otitis externa. What works today in one case, does not necessarily work tomorrow in another case. In fact, in some cases, it is almost miraculous that therapeutic measures are successful in any small way. When we consider the problem of infections, the first important step is drainage. The ear of the dog does not lend itself readily to drainage. In addition to the inflammation produced by the infective agent, the ear is further traumatized by the constant scratching by the animal's foot and the constant rubbing and shaking of the head. Furacin has been used successfully in this condition and we believe it to be a valuable addition to the armamentarium utilized in the treatment of otitis externa.

Astrom of Sweden⁴ used Furacin in 72 dogs and recommends it highly. In the same country, Nillson⁵ obtained good results in 18 of 21 cases of canine otitis.

Pressure Necrosis—We all know the danger of splinting a leg or a foot too tightly and the condition produced by not using a sufficient amount of cotton between the toes in the case of fractures. When true necrosis occurs and death of the tissue is established, the point of no return has been reached. However, in those cases where pressure necrosis is in the initial stages, the use of Furacin aids the salvage operation by keeping secondary bacterial infection to a minimum and thereby encouraging normal tissue repair.

Bone Necrosis—While this paper is concerned primarily with small animals, I would like to tell you about a case of bone necrosis

in the cow. I had the opportunity to see a cow in which the tuber coxae had been fractured and the fragment removed by the attending veterinarian. The wound was open and had been so for some days. We all know the odor of bone decay and this case was no exception. The bone was black and drainage was absent. The fascia and muscles were loose and the bone was freely movable. A pocket existed between the surrounding muscles and the exposed bony projection. At my suggestion Furacin Soluble Dressing was applied several times daily and later I was informed that an uneventful recovery had followed. Furacin has also been used to good advantage in bone necrosis of the small animal.

Impacted Anal Glands—A preparation of 2% Furacin and procaine penicillin G in crystalline suspension in peanut oil with aluminum stearate 3% has been used for the treatment of bovine mastitis. While this dosage form is intended for the treatment of mastitis in cows, investigations indicate it to be also a good treatment for impacted anal glands of dogs. In this case the 7.5 cc. applicator tube is used to advantage. The tip of the tube applicator is inserted into the anal gland orifice and the contents expressed into the anal gland. A sufficient amount of material is used first to flush out the glands. The glands are then filled with this Furacin product. The dog is discharged until several days later when it is again returned for repeat treatment. Many investigators find that this product softens the caked debris and reduces inflammation. Nillson⁶ also used Furacin in a similar way, curing 21 of 22 dogs with inflammation of the anal canal.

For additional references on the Furacin treatment of surface bacterial infections, we would refer you to the work of Armistead,⁷ DeCamp,⁸ Kaplan⁹ and Knowles et al.¹⁰

Future Possibilities for Further Use of Furacin—Tarlatzis et al.¹¹ of Athens, Greece, reported on the successful peroral use of Furacin as an anticoccidial agent in lambs and kids. He summarized his paper as follows: "Furacin seems to be a highly effective anticoccidial agent in lambs and kids. . . . Furacin has the advantages over sulfaguanidine of being more effective and less expensive when calculated on a dosage basis."

Furacin, in a specially prepared vehicle for clinical research purposes only, has been used by various investigators with various degrees of success in the peroral treatment of coccidiosis of dogs. Drs. Pollock of New Jersey¹² and Weir of Alabama¹³ report variable results with Furacin in canine coccidiosis. Dr. Barr of California¹⁴ reports it to be a good treatment for coccidiosis and mixed enteric infections of young dogs when given in a dosage of 1 mg. per lb., t.i.d.

It is quite possible that our present dosage of 1 mg. per lb., t.i.d. per os for a total daily

dose of 3 mg. per lb., should be raised. The information to date is preliminary and more work is needed before definite conclusions may be made.

Giardiasis—Pollock¹¹ successfully used peroral Furacin therapy in a dog infected with Giardia lamblia.

Non-Specific Infectious Diarrheas—Fisher of Pennsylvania¹² reports excellent therapeutic response to oral medication with Furacin in non-specific infectious diarrheas of dogs. Carroll of San Francisco¹³ treated a dog with chronic diarrhea due to *Proteus* sp. This case also responded favorably to Furacin therapy.

In conclusion, we feel that Furacin when given orally has future possibilities at least in coccidiosis, giardiasis and non-specific diarrheas of small animals. However, more clinical research is needed before the picture is complete.

Summary

Furacin is a synthetic nitrofuran which inhibits essential microbial metabolic processes without affecting tissues of higher animals at therapeutic concentrations. Veterinary uses in small animals include all types of infections of the skin, eye, ear and accessible body cavities including postoperative prophylaxis of infection. Recently it has been used experimentally per os with success in some types of enteric infections.

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A resolution of congratulations was presented to Horace M. Armitage, Sacramento, by the California Board of Agriculture recognizing his outstanding service to agriculture for more than 43 years as a public official in California.

Mr. Armitage retired from the position of Chief, Bureau of Entomology, California Dept. of Agriculture, on November 1, 1955.

New "Dial-a-dose" Syringe



Daribiotic-AH offers a new antibacterial, anti-inflammatory formula for the complete treatment of bovine mastitis. This new formula, developed by the S. E. Massengill Company, is presented in the convenient "Dial-a-dose" syringe—four doses in one syringe, for easy administration.

Each dose (15 cc.) of the new Daribiotic-AH formula contains Neomycin sulfate, Polymixin B sulfate and an antihistamine, Methapyrilene HC1. The antibiotics have proved their effectiveness in controlling the infection, while the antihistamine combats the inflammation and its harmful effects. This combination encourages quicker recovery

of the infected quarter, and helps to preserve milking volume. Daribiotic-AH is available from licensed graduate veterinarians.

No VE Outbreak in Year

Is Vesicular Exanthema, dreaded by hog raisers the length of California, dead? Or has it just "gone underground?"

For almost a year now, since November, 1955, no new outbreak of this "explosive, unpredictable" VE has been reported in California.

But, warns Raymond A. Bankowski, authority on VE at the School of Veterinary Medicine, University of California, Davis, "there is no treatment for VE—once a hog is infected, the disease simply has to run its course."

New discoveries by University scientists, headed by Bankowski, show that VE is a complicated, unpredictable disease. Isolation of 3 before unsuspected virus types before VE was brought under control, brings the total to 7, any of which cause VE. Bankowski suspects there are even more types in existence.

California has always been a hot spot for VE. Outbreaks at 184 feed lots were reported in 1950. They dropped to 58 in 1951, jumped to 103 in 1952, zoomed to 135 in 1953.

Chemical Aspects of Animal Grooming

PART III. Additional Grooming Aids

ARNOLD LOWMAN, Ph.D.

Chief Chemist, Westwood Laboratories, Los Angeles, Calif.

In the first two articles of this series the chemical aspects of detergents and shampoos for washing dogs, and the toxicological problems of insecticides, were discussed. In this, the third and last article, it seems worthwhile considering some of the other products which may be used in dog grooming.

As indicated in the first article, professional grooming is an active and growing field of animal care. To the extent that a veterinarian wishes to keep the grooming part of his services on a comparable level, it would be worth his while to give thought to some of the products and methods used by the groomers.

Probably the most important product after shampoos and insecticides, at least in the grooming of long haired animals, is a product known in human beauty shops as a "creme rinse." Far from being a cosmetic and thus dismissed as an unnecessary frill, this type of product, also called "No-Tangle Rinse," is a tool to do a job and will save more than its cost on every occasion when it is used. Because of the nature of the chemical ingredients in No-Tangle Rinse, it adheres to the hair in invisible and undetectable quantities which are, nevertheless, sufficient to make the hairs slide over each other freely. This helps to undo existing snarls and to prevent the development of new ones. Since the product is inexpensive and dilutes a long way, its cost is negligible against the labor cost of extra combing to remove snarls. It truly pays its way, as many veterinarians who were originally skeptical, have had to admit. This type of product was first used in the woolen industry and then in the human beauty shop to impart feel, softness and manageability to hair. Its adoption by those grooming dogs is therefore a logical development.

Another type of product which is an adaptation of an old procedure is the use of a blue rinse on white dogs. Grandmother used to put blueing in the laundry to keep the sheets white, since they tended to acquire a yellowish tinge on laundering and exposure to the sun. The same problem exists in white haired animals. A dog with a sparkling white coat will often lose some of that dazzling white in the process of shampooing. This may be overcome and the natural snowy whiteness maintained by the use of a shampoo containing the proper kind and concentration of blue coloring. At the same time, animals which used to be white but have acquired an undesirable yellowing of the coat, can be brought back to their original whiteness by the application of blue rinses. These are somewhat

stronger in blue coloring than shampoo and may be left on the coat without rinsing. Both of these products are as reasonable to use to keep a dog in his optimum appearance as the giving of various medicaments designed to help maintain optimum health.

The coats of various animals can be improved in appearance and condition, or in conformity to the ideal coat when entering shows, by the application of various materials to the hair. Standard among such preparations are grooming oils that leave a very thin film of oil on the hair and act like a human brilliantine in imparting a gloss and sheen to the coat. Where the coat and underlying skin are grossly defatted and dry (as can occur when raw detergents are used instead of proper shampoos) there are lanolin preparations available which can be worked into the skin before shampooing and will help restore the normal state of affairs.

Certain breeds of dogs are supposed to have rather stiff hair which will stand up. When it does not, it can be helped by various preparations borrowed from human beauty shops such as wave sets and aerosol sprays which impart body and stiffness to the hair.

Some types of dogs, such as shepherds and boxers, are bothered in the summertime by fly bites on the ears and tail. This burden can be relieved by the use of safe, almost odorless insect repellents, patterned after those developed for use by the Armed Forces during the war.

Last, but perhaps not least, particularly in the psychological effect that it has on the dog's owner (who is the one who pays the bill), is the use of a cologne. Spraying a dog with a pleasant and selected fragrance such as carnation or lavender just before he leaves the hospital is good business sense (as well as scents). It covers up the often present "hospital smell" that is associated with sickness, masks any natural "doggy" odors and gives a sense of clean freshness. All of this makes a good impression on the dog's owner and makes him feel that his pet has received every possible attention.

Granddaughter for Dr. and Mrs. A. M. McCapes

Mr. and Mrs. Richard H. McCapes are the proud parents of a baby girl, born October 20—the first member of the distaff side in the McCapes family in three generations.

Dick is a junior in the Veterinary School at Davis, and the gloating grandparents are Dr. and Mrs. A. M. McCapes, of San Luis Obispo.

CSVMA Members Triumph in Golf



President A. Mack Scott, center, congratulates golf winners W. W. Putney, left, and R. R. Smith.

The AVMA Trophy at the Ninth Annual Golf Tournament, held in conjunction with the 93rd annual meeting of the AVMA, went to the team of Drs. W. W. Putney and R. R. Smith, CSVMA. Congratulations, Doctors!

Other awards: Open Division, Maj. G. Ritter, Fort Worth, with net score of 71½;

Senior Division, Dr. E. H. Haynie, Kansas City, Mo., 18 holes in 74 strokes; Exhibitors' Division, R. M. Perkins, Fort Dodge Laboratories, who scored 72½; Student Honors, D. W. Hilliard, Texas A. and M. The low gross score of the day was made by Dr. W. W. Putney with 77. Low net was made by Major G. Ritter.

Ashe Lockhart and Haver-Glover Merge

Dr. Joseph F. Knappenberger, president of Ashe Lockhart, Inc., has announced the merger of his company with Haver-Glover Laboratories, effective November 1st.

The newly formed company, to be known as Haver-Lockhart Laboratories, will maintain its headquarters offices and two manufacturing plants in Kansas City, Missouri.

Dr. Knappenberger said that Haver-Lock-

hart will continue to adhere to the policy of sales to graduate veterinarians only, which has been observed by both firms in the past.

Ashe Lockhart, producers of biologicals for large and small animals, was founded in 1927 by the late Dr. Ashe Lockhart. Haver-Glover has supplied a wide variety of pharmaceutical products and instruments to the Profession for 36 years. Dr. Knappenberger will continue to serve as president of the combined companies.

AVMA House of Representatives Report

The House of Representatives of the American Veterinary Medical Association met in San Antonio October 13, 1956. It was a long session but much business was handled.

Californians elected to Life Membership were: Doctors R. A. Ball, W. I. Bowersox, N. E. Clemens, T. W. Healy, E. Lash, J. McInnes, J. F. Mitchell and C. R. Palmer.

The general outline of a new constitution and bylaws was approved. It is hoped that it may be completed and adopted at the next annual meeting. In general, it will provide the Executive Board with administrative authority and the House of Representatives with legislative power. It is likely that it will change the procedure for the nomination of officers and that the election will be at the annual meeting as at the present.

The House approved the support of legislation which may be introduced which would place Poultry Inspection in the regular meat inspection branch.

The Association opposed compulsory Social Security participation and supported voluntary coverage for self-employed veterinarians. Perhaps all now know that the legislation passed by Congress requires the participation of all self-employed members of this profession.

All possible support will be given the Veterinary Corps of the Army and Air Corps in the attempt to destroy it now being made by the Department of Defense. At this time the outcome appears uncertain.

A group insurance plan very similar to the one being offered by our California State Veterinary Medical Association was approved. It will be made available to any State that desires the use of it and can qualify with the approved number of policies.

The Association now has more than 14,000 members. During the past year 1032 new members were admitted. Of these 786 were recent graduates. This represents an increase of about 5000 members during the last ten years. California leads with 1224 members. New York is next with 799 members.

The total income for the year exceeded \$470,000 so it may be readily understood that the work load of all concerned is steadily increasing. The income has doubled in the last five years.

Next year's meeting will be held during August at Cleveland, Ohio.

DR. CHAS. J. PARSHALL, Delegate.

We regret that the name of Dr. Eugene C. Jones, 5900 Bayshore Walk, Long Beach, was left out of the roster of members of the CSVMA, published last issue.

Gen. Kester, AVMA President

Brig. Gen. Wayne O. Kester, Chief of the Veterinary Corps, U. S. Air Force, Washington, D. C., was elected president of the American Veterinary Medical Association at the annual meeting in San Antonio.



GEN. WAYNE O. KESTER

Service he has traveled extensively at home and abroad.

He has maintained surveillance of food supply situations, food producing animals, and animal disease with respect to their possible effect on our troops overseas, as well as our livestock industry and the public health and welfare in general.

Dr. Marsh Awarded 12th International Veterinary Congress Prize

Dr. Hadleigh Marsh, Helena, Mont., was awarded the Twelfth International Veterinary Congress Prize at the opening session of the AVMA convention.



DR. HADLEIGH MARSH

The citation also commended his record as a livestock sanitary official, and his all-around endeavors as a citizen.

Dr. Marsh is presently Montana State Veterinarian, on leave of absence from the Montana Veterinary Research Laboratory.

In 1955, Dr. Marsh was presented a Centennial Award by Michigan State University in recognition of his work as "scientist, conservationist, humanitarian, and eminent ovine pathologist."

Secretary Travers Receives High AVMA Honor



Dr. Floyd Cross, AVMA president, presents Harry Miller, left, and Charles S. Travers, right, with Certificates of Appreciation. Miller is Director of the Gaines Dog Research Center and was cited for his interest in and devotion to dogs. Travers' award was for his untiring efforts in devoting himself to veterinarians' problems.

Charles S. Travers, executive secretary, CSVMA, was presented with a Certificate of Appreciation by the American Veterinary Medical Association at the opening session of the 93rd annual meeting in San Antonio.

This Certificate is presented to selected persons in lay life who make significant contributions to the public understanding of the veterinary profession.

Mr. Travers has served as executive secretary of the CSVMA for ten years, during which time the association has increased its membership more than four times. He was commended for his untiring energy and readiness to devote himself to problems of the profession, nationally, as well as those of California veterinarians.

After the presentation, Secretary Travers was the recipient of scores of congratulatory praises from California veterinarians at the convention, as well as from foremost veterinarians in other parts of the country.

President A. Mack Scott said: "This is a wonderful gesture to our secretary. He has devoted himself assiduously to the task of bettering our profession, not only through the solving of our many issues, but by making the general public conscious of our efforts.

"He has built *THE CALIFORNIA VETERINARIAN* to the largest and most respected Journal among State Veterinary Associations. I know I speak for our entire association in complimenting him upon receiving this high honor."

Drinking Water Treatment of Cecal Coccidiosis in Chicks

A new water-soluble form of Furacin (nitrofurazone, Eaton) placed in drinking water, has proved highly effective against experimental cecal coccidiosis in chickens. The chicks did not lose weight while under Furacin treatment or thereafter. Professor Cornell A. Johnson of the Howard University department of zoology described the treatment

and results at 1956 annual convention of the Poultry Science Association in Raleigh, N. C.

This new form of Furacin, now known as Furacin Water-Mix Veterinary, was developed by Eaton Laboratories over the past year and approved in August by the Veterinary Medical Branch of the Food and Drug Administration.

Col. Foster Receives Award For Distinguished Service

Col. Robert J. Foster, U. S. A. (Retired), of San Francisco, was presented the AVMA Award for distinguished service to the veterinary profession at the opening session of the AVMA convention.



COL. ROBERT J. FOSTER

nition for his services to veterinary medicine.

In presenting the award to Colonel Foster, Dr. Floyd Cross, president of the association, cited Col. Foster's "50 years of tireless effort to uphold the standards of veterinary medicine and the profession in all walks of life—civil, military and governmental."

Col. Foster began his army career in 1905, and when the Army Veterinary Corps was created in 1917, he was one of the few veterinarians with previous military experience. He was head of the Veterinary Corps from 1934 to 1938.

A past president of the AVMA, Col. Foster was a leader in the reorganization of the association in 1937.



Presidents exchange greetings at San Antonio. Left, Gen. Wayne O. Kester, AVMA, and A. Mack Scott, CSVMA.

Humane Act Award Won By Eagle Scout

A 15-year-old Eagle Scout, Glen T. Allen of Miami, Florida, was named winner of the 1956 Humane Act Award at the National convention of the AVMA in San Antonio, Texas. Glen, son of Mr. and Mrs. William Allen, will receive a \$100 U. S. Savings bond in addition to the official national citation. He was selected for the honor because of his four and one-half year fight for permanent protection



EAGLE SCOUT GLEN T. ALLEN

and government refuge for the tiny, rare Florida Key deer.

He took his crusade to save the Key deer right to the top by writing letters to Presidents Truman and Eisenhower and other leaders in government and conservation circles. The establishing of the National Key Deer Refuge in 1954 was a start toward guaranteeing the natural habitat for the perpetuation of this unique wild creature.

These animals are found only in the Florida Keys, the only area in the world where they can survive. They are the last of their species in the world, with the present herd numbering slightly over 100, compared with only 30 in 1951.

"Glen is one of the most deserving youngsters ever to receive this award," commented Dr. W. A. Young, chairman of the national humane act award committee, in making the announcement at the convention session.

AVMA Closes Meeting in Mexico City

On Saturday, October 20, one hundred eighty-eight veterinarians and their wives were hosted by more than 200 Mexican veterinarians and their families at the Science Auditorium of the University of Mexico, in Mexico City, following the San Antonio convention.

It was only the second time that the AVMA has met beyond the limits of the United States or Canada.

This joint session with Mexican veterinarians was a gesture of the cordial cultural and scientific relations that are maintained between the two countries.

At the meeting, held at the oldest university in the Western Hemisphere, were the following dignitaries: Dr. Efren C. del Poza, secretary-general of the University of Mexico; Dr. Floyd Cross, retiring president of AVMA; Dr. Oscar Valdez Ornelas, director of the National Veterinary School of Mexico; General Wayne O. Kester, president, AVMA; Dr. Alfonso Alexander, president of the Association of Veterinarians of Mexico; Dr. Fernando Camargo, chief of the laboratories in Palo Alto; Dr. Jesus Madrigal Yanez, president of the Mexican Veterinary Association; Dr. Joseph M. Arburua; Dr. Gabriel Atristain; Dr. Roberto Alvarez Ruiz; Dr. John Hardenbergh; Dr. Juan Gomez Pina, and Dr. Carlos Scheelbach.

Dr. Ornelas gave the address of welcome, which was responded to by Dr. Arburua, in Spanish. Dr. Arburua's remarks follow:

"Dr. Cross, my esteemed colleagues, and ladies:

"This is a great day for the veterinarians of North America. This is only the second time that the AVMA, which is made up largely of United States and Canadian veterinarians, has met beyond the limits of those two countries. It is, in fact, a joining of hands of the three great countries of North America.

"It is exactly 20 years ago since I visited this Capital. It is amazing to note the progress and the changes that have taken place. I consider it a great privilege to have the opportunity to re-visit your great country. I know that I am expressing the sentiments of all the visiting members of the AVMA and their ladies when I say that, for them, it is also a happy experience.

"Although this is the first occasion of its kind in Mexico, it is not the first time that veterinarians of the United States have worked with their colleagues of this Republic. It is not so long since they joined in the common cause of eliminating Foot and Mouth disease, and preventing its further spread in this country. The complete eradication of the disease is evidence of what can be done by cooperation.

"It can never be known when a similar situation may arise and it may become necessary for our countries to unite again for a common cause. Perhaps the next time it may be necessary for the Mexican veterinarians to go north to assist in a similar campaign—who knows?

"I could speak at length with enthusiasm on the interesting sights: the magnificent parks, the elegant churches, the large and beautiful public and private edifices, the beautiful residential districts and other

progress. However, the one thing that most attracts the attention of visiting veterinarians is the great educational center that you have here, and more particularly, this fine veterinary college. I had the pleasure of visiting your great University before it was removed to this site and rebuilt. I had been told of the elegance of the new campus but I was not quite prepared to see what met my eyes.

"You have here one of the largest, as well as one of the most beautiful and well appointed academic institutions of the world. Incidentally, I might add, the oldest University in the Western Hemisphere, existing since 1552.

"In it, you have the oldest and one of the best veterinary schools in the Americas, established in 1853. Your faculty is numerous and well prepared to teach veterinary medicine and zootechnics; your facilities are modern and well equipped.

"It is interesting to compare the curriculum of a Latin American or Spanish Veterinary College to those of the United States and Canada, or even the British schools. You attach more significance to zootechnic subjects than they do and cover a much wider field in this respect. The English-speaking veterinarians do not get as broad an education in animal husbandry.

"There are, undoubtedly, reasons for this. The field of animal husbandry and agriculture in our country is highly specialized and these subjects are not so important to the veterinarian. Further, in the United States, fully 65 per cent of veterinarians are in private practice, the other 35 per cent are in research, teaching, government and miscellaneous work. In your country, a relatively small number are in private practice, the rest being employed mainly in government service. It is, therefore, important that the training and education of your veterinarians be continued along the lines that will best fit them for their professional duties.

"I welcome this opportunity on behalf of the AVMA and this visiting group to thank our Mexican colleagues for their kind hospitality and to extend to them the greetings of the 20,000 veterinarians in the United States and Canada. Also, I want to extend an invitation to the entire veterinary profession of Mexico to visit our countries, especially to the Pan American Veterinary Congress in Kansas City, Missouri, in 1959, either collectively or individually. The AVMA conventions are open to you; its officers and members are anxious that you attend them. May each of you, as well as all the veterinarians in Mexico, consider this an individual and cordial invitation."

California veterinarians in attendance included: Dr. and Mrs. J. B. Crundwell; Dr. and Mrs. W. I. Dill; Dr. and Mrs. Leo S. Goldston; Dr. and Mrs. W. W. Putney; Dr. and Mrs. A. G. Boyd, and Dr. J. M. Arburua.

Important Notice to Members on Group Life Insurance

We are advised by the Union Central Life Insurance Company that for a limited time only applications are still being accepted from our members. If you have lost, or mislaid your application form, and are interested in making application for this group life insurance, write to Mr. Robert D. Davis, Union Central Life Insurance Company, 120 South Seventh Street, Minneapolis 2, Minn., for full details. We advise you to act on this promptly if you have not already applied for this protection.

Dr. Armistead, President-Elect, AVMA

Dr. W. W. Armistead, dean of the Veterinary School, Texas A. and M. College, was elected president-elect of the American Veterinary Medical Association at the 93rd annual convention held October 15-18, in San Antonio.



DR. W. W. ARMISTEAD

overseas with the V. C. as a commissioned officer. On his discharge he accepted a post as clinician and professor at his alma mater, and became Dean of Veterinary Medicine at Texas A. and M. in 1953.

When installed as president of the AVMA in 1957 he will become the fifth president from Zone 3 in AVMA history.

Borden Award to Dr. Herbert L. Gilman

A cash honorarium of \$1,000, with accompanying gold medal representing the national Borden Award for "outstanding research which contributes to dairy cattle disease control," was presented to Dr. Herbert L. Gilman, Ithaca, N. Y., at the opening session of the AVMA convention.

The award is given by the Borden Company Foundation to encourage achievements in several scientific fields; the one in veterinary science is given each year at the time of the AVMA convention.

In the presentation of the award, Dr. Gilman was cited for his extensive studies on reproductive diseases and sterility in dairy cattle. He was also cited for his research work on bovine brucellosis, trichomoniasis, and vibriosis.

A graduate of New York State Veterinary College, Cornell University, Dr. Gilman is now Professor of Veterinary Bacteriology at the college. Most of his professional life has been devoted to research on diseases of dairy cattle, and teaching.



DR. HERBERT L. GILMAN

California Veterinarians Who Attended AVMA Convention*

Joseph M. Arburua, San Francisco; Norman F. Baker, Davis; Roger A. Ball, Petaluma; Donald E. Barr, Fresno; Harold Beadner, Riverside; F. M. Brennan, Chino; E. P. Bogart, Vista; Arthur G. Boyd, Sacramento; John H. Cady, Vista; D. H. Casselberry, Berkeley; Gaylord Cooke, Berkeley; Keith Cornforth, Oxnard; J. B. Crundwell, Burbank.

W. V. Dakin, Sherman Oaks; C. Ross Dean, Anaheim; Byron E. Denholm, San Pedro; Walter I. Dill, San Fernando; James R. Douglas, Davis; Woodrow W. Eastep, San Marino; R. H. Featherston, Bakersfield; R. B. Fink, Whittier; Robert J. Foster, San Francisco; Roy Gibbens, San Diego; Robert W. Glotfelter, San Francisco; Leo S. Goldston, Oakland.

Carroll L. Hare, San Fernando; Thomas D. Harris, Jr., San Mateo; W. P. Heuschele, San Diego; Donald E. Jasper, Davis; N. N. Jerome, San Diego; Harold N. Johnson, Berkeley; Richard H. Jurden, San Bernardino; William J. Kelber, Ontario; Bernard Koch, Santa Cruz; F. W. Koebel, Gustine; Robert F. Lapham, San Bernardino; H. H. Laskey, Chino.

Donald M. Mason, San Francisco; J. F. Meyer, Camarillo; Gerald S. Miedema, San Francisco; Leonard L. Mortimer, Redondo Beach; N. L. McBride, Pasadena; George McClintock, Los Angeles; Blaine McGowan, Davis; Kenneth G. McKay, Davis; Rufus R. Norton, River Bank.

Philip Olson, Los Angeles; Charles H. Ozanian, Bellflower; C. J. Padfield, La Mesa; Charles J. Parshall, Hayward; Emmet W. Paul, Redwood City; Ernestine K. Payen, Sacramento; John K. Perry, Palo Alto; R. E. Philbrick, Riverside; W. W. Putney, North Hollywood; L. G. Raggi, Davis; Guy A. Rallsback, Berkeley; Milburn W. Reed, Reedley; Charles H. Reid, Hollywood; Seymour R. Roberts, Richmond; Alan Ross, Long Beach.

Van D. Sandstedt, San Francisco; F. P. Sattler, Fullerton; Kermit Schaaf, Niles; O. W. Schalm, Davis; R. C. Schock, Los Angeles; A. Mack Scott, Long Beach; Otto S. Shill, Jr., San Francisco; Charles L. Smith, Santa Cruz; Rollin R. Smith, Torrance; M. A. Snell, Edwards AFB; William E. Steinmetz, Sacramento.

Reginald A. Stocking, Los Angeles; L. B. Tennison, Jr., Berkeley; Thad Thorson, Garden Grove; Ralph C. Vierheller, Whittier; W. G. Walker, Tujunga; Leslie C. White, San Bruno; F. P. Wilcox, Los Angeles; W. A. Young, Los Angeles; W. J. Zontine, Lancaster.

In addition, a number of representatives of pharmaceutical houses in California attended.

Your executive secretary and Mrs. Travers and Mr. and Mrs. Don Mahan, secretary of the SCVMA, attended.

*Covering registrations up to 2 p.m., Tuesday, October 16th.

Veterinarians in Nutrition

The American Association of Veterinary Nutritionists was organized at San Antonio, on October 16, 1956. A group of 37 veterinarians attending the AVMA adopted a constitution and elected officers. Dr. M. Erdheim, Dawe's Laboratories, Chicago, Illinois, is the first president, Dr. R. E. Lubbehusen, Ralston-Purina Mills, St. Louis, Missouri, is president-elect, and Dr. R. C. Klussendorf, Commercial Solvents Corporation, Terre Haute, Indiana, is secretary-treasurer.

Membership in AAVN is open to every veterinarian who is a member of the AVMA. Already more than 120 have expressed interest and signified intention of affiliating.

CSVMA Women's Auxiliary

Report of the AVMA Auxiliary Convention

Southern hospitality and western entertainment awaited those who attended the thirty-ninth annual meeting of the AVMA Women's Auxiliary in the documented, picturesque, historical city of San Antonio.

Meticulous planning, almost awesome in its details with effect of European sophistication and essence of collaborated splendor was activated by the local organization. The tea for the Auxiliary officers was held in the famous Anacacho Room of the St. Anthony Hotel in an atmosphere reminiscent of the avid gold days.

The annual luncheon followed by an outstanding fashion show was held at the Seven Oaks Country Club. The models for the show were typical of the "Texas Beauties." . . . Approximately 800 Auxiliary members and guests were present for this amiable gathering.

Typical Texas style chuckwagon barbecue and alumni dinners were held. The Texas alumni with unquenchable enthusiasm invited all the alumni to their ceremonial niche and a Davey Crockett time was had by all.

Mrs. A. E. Combs, President-elect of Maine, presided at the business meeting of the Auxiliary held in the Grand Ballroom of the Hilton Hotel. Reports of officers and committees, constitution changes and election of officers were completed. The "pulling together" feeling of the Auxiliary activities gave renewed inspiration to all those who attended. Convention registration from California totaled 104 Veterinarians and Auxiliary members. Mrs. Charles H. Ozanian served as our delegate from California. She interspersed many ideas during the meeting.

* * *

Veterinary faculty wives group, with the Sacramento Auxiliary assisting, will hostess the January luncheon. Mrs. George Hart of Davis is the Chairman of the committee on arrangements.

Our President, Mrs. R. E. Duckworth, reports a new granddaughter this summer so she has been a very busy lady. Also Dr. and Mrs. Plocher are boasting the arrival of a baby girl.

Dr. Scott, President of the men's Association with a terminal clarity of ramification passed out cigars for the arrival in his family of a BOY, Randall Mack. We are sure that Mother Claire and Sister Cheryl are complacent over the event, too. . . .

Any news will be gratefully accepted and published if sent to Mrs. Reginald A. Stocking, 3166 Los Feliz Blvd., Los Angeles 39, California.

BOOK REVIEW

Diseases of Cattle

Edited by M. G. Fincher, D.V.M., W. J. Gibbons, D.V.M., Karl Mayer, D.V.M., and S. E. Park, Ph.D. A text and reference work with 57 authors, American Veterinary Publications, Inc., Evanston, Illinois, 1956. Price \$16.00. 737 pages of text, many illustrations.

The purpose of this work was "to provide the veterinary profession with a modern text written by specialists in certain fields of cattle practice and research." This modest goal has been far exceeded, as it is in every way a stellar performance.

The book is expertly organized and superbly written. The intent is to inform, and the content seems comprehensive, authoritative, and right up to the minute. It is aimed at the veterinarian by men who know him thoroughly. The authors do not talk down to him; he is not a fool but a graduate veterinarian. Neither do they flatter him; he is no superman. They know what he wants to know, and what he needs to know, and they tell him in plain American. The grammar is not always perfect, but the sense is never for a moment obscure. No author is attempting to impress the reader with his vast erudition, or to cover up the lack of it by masses of impenetrable verbiage. The book is therefore unusually easy on the mind.

My only adverse criticism is the failure to indicate in the index by bold-face type the page numbers that refer to the main article on the subject. A minor point, perhaps, but a time-saver for a reference work.

No expense has been spared to make this book as easy on the eye as on the mind. The format is beautiful. The clear text, in two columns of properly spaced lines, leads the eye with the least possible fatigue. If this has added appreciably to the price of the book, it is more than worth it.

In summary, this is the finest veterinary text and reference work that my aging and jaundiced eye has yet encountered. It is an absolute necessity for all veterinary libraries, and all general practitioners. *Reviewed by Dr. Mary Dunlap.*

In Memoriam

Dr. Theodore Joseph Niemeyer, 2121 Pico Blvd., Santa Monica, passed away on September 23, 1956.

* * *

Dr. Mitchell Joseph Smith, 3740 Rosecrans Street, San Diego, passed away on October 10, 1956.

The Humane Touch

CHARLES W. FRIEDRICH, *Executive Secretary, San Francisco SPCA*

It is appalling in this day and age that some counties in Northern California have no public pound—and in many towns of good size the problem of stray or unwanted animals is being ignored.

Early in 1954 The San Francisco Society for the Prevention of Cruelty to Animals sought to alleviate the situation, not by "poking our nose" into things, but by offering free counsel, guidance and investigation of problems involving animals, shelters, animal control programs, rescue and anti-cruelty law enforcement in those Northern California areas where such help is needed.

A Field Service was formed, implemented through the incorporation of an affiliate society, the Northern California SPCA. Even before the Service was put into operation there was a backlog of requests for assistance.

Mr. Gerald R. Dalmadge was appointed Field Service Director. Mr. Dalmadge is widely known to San Francisco peninsula residents and throughout the humane field. It was, and still is, a one-man job, and Dalmadge's territory consists of the 43 Northern California counties—a vast area.

The SPCA undertook a campaign of education and public service for the benefit of animals. The Society drew upon its many years

of shelter operation, experience, and free consultation service to draw up a set of minimum standards outlining the essentials which an animal shelter or pound should have. A model animal regulation ordinance for cities and counties was developed and made available.

Early in the program a veterinarian, also a life member of the Society, advised about poor facilities of the pound in his Central California community. An inspection was made, suggestions offered, and many improvements came about.

Director Dalmadge frequently calls upon veterinarians, especially in the hinterlands where stray, sick or injured animals are provided with no pound care. It is in these areas where veterinarians are often besieged to take in strays. The Field Service is removing this burden from the practitioners, generally improving the animal situation, and helping to keep sick dogs and cats off the streets through the creation of proper public facilities.

The lack of adequate care of small animals often stems from disinterested city governments which do not realize that public health and safety are involved in mismanaged animal control and care.

In less than three years the SPCA's Field Service has extended into hundreds of Northern California cities. In addition to the minimum standards, plans were prepared for small-animal shelters, humane lethal chambers, and suggestions were made for needed equipment. In each instance, economy and efficiency of operation went hand-in-hand. The Society's "know-how" eliminated costly pitfalls in shelter construction and equipment.

(Continued on page 37)



CHARLES W. FRIEDRICH

Solano County's new shelter has 16 kennels, plus isolation space, with provision for expansion to 48 kennels.

An example of San Francisco SPCA's Field Service counsel.



Welcome to Davis, 1957

A cordial welcome is extended to all veterinarians to attend the 1957 Midwinter Veterinary Conference in Davis. Not only is an opportunity afforded for increasing our professional competence, but, just as important, renewal of old friendships and the making of new acquaintances is inevitable. The profession faces many problems in this changing world and we must join together in understanding them and solving them. It is our desire that the Midwinter Conference serve a vital place in advancing the welfare of the veterinary profession and the California State Veterinary Medical Association. As they say in the South, "you all come."

DEAN DONALD E. JASPER
School of Veterinary Medicine

Leptospirosis is Major Problem

Leptospirosis is number one on a list of animal diseases which should be attacked by veterinary researchers.

So reports Dr. Kenneth G. McKay, extension veterinarian at the University of California, Davis. Leptospirosis, as formidable as it sounds, was named as the major problem at a recent poll of research workers.

A research team in the University of California School of Veterinary Medicine at Davis, headed by J. A. Howarth, assistant professor, are busy now looking for a more effective control of the disease. Howarth finds the best bet for eradicating the disease from infected swine herds seems to be the use of aureomycin together with vaccination; vaccination is also used for cattle.

The disease takes a heavy toll in 26 reporting states—and is frequently found in California. It hits cattle especially hard, and is responsible for sizeable losses among hogs, horses, and dogs.

"People get it, too, especially those who work closely with animals, such as veterinarians, butchers, livestock handlers, and dog trainers," said McKay. "As a human disease, it is frequently known as Weil's Disease."

McKay pointed out that leptospirosis, recognized as being a national menace only since 1945, is extremely complicated; it doesn't seem to follow a pattern. Many diseased animals are "carriers"; they may spread the infection for a period of several weeks to a year, depending upon the type of animal.

Announcing...

Closed Circuit Television

Wednesday, January 30 — 10 A.M.-Noon

★ ★ *

Large and Small Animal Demonstrations

★ ★ *

Entire Program Sponsored by

ALLIED LABORATORIES, INC.,
PITMAN-MOORE COMPANY DIVISION

Midwinter Conference Speakers

R. VICTOR JOHNSTON



DR. R. VICTOR JOHNSTON, a native of Bridgeport, Texas, is a member of Pitman-Moore Company's Veterinary Relations Department.

A graduate of Texas A and M College with a degree of Doctor of Veterinary Medicine, he previously received his degree in animal husbandry from Arlington State University and attended Mercer University and the University of Georgia.

Dr. Johnston joined Pitman-Moore Company in 1948, engaging for two years in the production of Virogen, a canine distemper vaccine produced by Pitman-Moore Company's biological laboratories. He later became associated with the anaerobic toxin department, and the embryonated egg unit.

For five years he was in charge of the company's tissue products department, supervising the production of Swivax (Hog Cholera Vaccine), Virogen, Virogen D-H, feline distemper vaccine, rabies vaccine, both human and veterinary; hepatitis vaccine and other tissue products.

Dr. Johnston is a member of the American Veterinary Medical Association as well as the Indiana State and district associations. He is also a member of the United States Live Stock Sanitary Association and has had numerous technical papers published, especially those involving leptospirosis and hog cholera immunization.

Dr. Johnston is married and has a son and daughter.



C. LAWRENCE BLAKELY

DR. BLAKELY is Director of Surgery, Angell Memorial Animal Hospital, Boston, Mass. He will speak on "Surgical Procedures in Small Animals" and "Oxygen Therapy and Artificial Respiration."



DONALD C. BOUGHTON



DR. BOUGHTON is Technical Development Manager, Animal Industry Products, Grasselli Chemicals Department, E. I. du Pont de Nemours and Company, Wilmington, Delaware. He obtained the Ph.D. degree from the University of Wisconsin in 1932 and was a National Research Council Fellow at Johns Hopkins and Harvard Universities. He has had extensive teaching, research and practical experience in Universities, the Rockefeller Institute for Medical Research, the U. S. Department of Agriculture and in his present work with the du Pont Company.



O. R. ADAMS



DR. ADAMS is Professor and Head of Veterinary Clinics and Surgery at the School of Veterinary Medicine, Colorado A and M College, Fort Collins, Colorado. He obtained the D.V.M. degree from Colorado A and M College in 1946. Following graduation, he stayed on the staff of that institution as Assistant Professor and Ambulatory clinician. In 1951 he was made Head of the Veterinary Clinics, and assumed his present position in 1953. His chief interests are diagnostic problems and surgery of large animals.



Conference Speakers

O. R. Adams, D.V.M., Head of Veterinary Clinics and Surgery, Colorado A and M College, Fort Collins, Colorado.

Reuben Albaugh, Extension Animal Husbandryman, University of California, Davis.

A. C. Andersen, D.V.M., Principal Investigator, AEC Project No. 4, School of Veterinary Medicine, University of California, Davis.

C. Lawrence Blakely, V.M.D., Director of Surgery, Angell Memorial Animal Hospital, Boston, Mass.

Donald C. Boughton, Ph.D., Technical Development Manager, Animal Industry Products, Grasselli Chemical Department, E. I. du Pont de Nemours and Company, Wilmington, Delaware.

Frank M. Brennan, D.V.M., Practitioner, Chino.

R. L. Collinson, D.V.M., Practitioner, Modesto.

Perry T. Cupps, Ph.D., Associate Professor of Animal Husbandry, University of California, Davis.

Ben Dean, D.V.M., State Dept. of Public Health, Berkeley.

R. S. Dickson, D.V.M., Practitioner, Bakersfield.

John B. Enright, Ph.D., School of Veterinary Medicine, University of California, Davis.

Stuart M. Foster, D.V.M., Practitioner, Woodland.

Leo S. Goldston, D.V.M., Practitioner, Oakland.

Earl H. Gray, M.D., Radiologist, Woodland Clinic, Woodland, and Lecturer in Radiology, School of Veterinary Medicine, Davis.

M. A. Hornung, D.V.M., Practitioner, Alturas.

J. A. Howarth, D.V.M., Ph.D., School of Veterinary Medicine, University of California, Davis.

George L. Humphrey, D.V.M., State Dept. of Public Health, Berkeley.

Roger V. Jessup, D.V.M., Practitioner, Glendale.

R. V. Johnston, D.V.M., Manager of Veterinary Professional Relations, Pitman-Moore Company, Indianapolis, Indiana.

John W. Kendrick, D.V.M., School of Veterinary Medicine, University of California, Davis.

Blaine McGowan, Jr., D.V.M., School of Veterinary Medicine, University of California, Davis.

Robert W. Ormsbee, D.V.M., Practitioner, Stockton.

Charles H. Ozanian, D.V.M., Practitioner, Bellflower.

Charles J. Parshall, D.V.M., Practitioner, Hayward.

James Ruegsegger, M.D., Lederle Laboratories.

O. W. Schalm, D.V.M., M.S., Ph.D., School of Veterinary Medicine, University of California, Davis.

Gordon Schultz, D.V.M., Sheep Specialist, State Division of Animal Industry, Sacramento.

W. M. Stanley, B.S., Ph.D., Director, Virus Laboratory, University of California, Berkeley.

R. B. Tangeman, D.V.M., Practitioner, Susanville.

A. L. Tietze, D.V.M., Kern County Land Company, Bakersfield.

Ralph D. Westfall, D.V.M., Colusa.

Large Animal Practitioners' Luncheon

Sunday, January 27, 12:30 P.M.

Hotel El Rancho

"The Economics of Large Animal Practice,"
Dean Ewald T. Grether, School of Business Administration, U. of Cal., will head a group in a Panel Discussion.

Hotel Reservations

Hotel El Rancho, West Sacramento, is official headquarters for living accommodations. For reservations there, or at nearby motels, please write direct, giving time of arrival and departure.

PRO

CALIFORNIA STATE VETERINARY MIDWINTER CONVENTION

PROGRAM COMMITTEE: Chairman, Richard L. Bradley Crundwell, Ernest J. Hart

JANUARY 28, 29, 30, 1957, SCHOOL OF VET

MONDAY, JANUARY 28, 1957

GENERAL SESSION

Morning

9:00—12:00—Registration.

9:00—12:00—Demonstrations and Discussions of Newer Methods of Mastitis Control, O. W. Schalm, U. C. Staff and practitioners.

Afternoon

Auditorium

Chairman, FRED B. WALKER, Jr.

1:30—Invocation.

Welcome—Stanley B. Freeborn, Provost.
Response—A. Mack Scott, President, CSVMA.
Presentation of George H. Hart Portrait,
Charles H. Burger, University of California
Veterinary Alumni Association.

2:00—AVMA Affairs, Charles J. Parshall.

2:15—Results of 1956 Rabies Vaccinations, Davis,
James Ruegsegger.

2:30—The Menace of Parasites, D. C. Boughton.

3:15—The Newer Concepts of Viruses, W. M.
Stanley.

4:00—Business Meeting, CSVMA.

* * *

TUESDAY, JANUARY 29, 1957

SMALL ANIMAL SECTION

Auditorium

Morning

Chairman, E. H. HOUCHEIN

8:45—Film.

9:00—Canine Fertility, Leo S. Goldston.

9:30—New Developments in Rabies, Hepatitis and Distemper Immunization, R. V. Johnston.

10:15—Kennel Management and Disease Control in the AEC Dog Colony, A. C. Andersen.

10:45—Film—The Beagle Colony in Action.

11:00—Surgical Procedures in Small Animals, C. L. Blakely.

Afternoon

Chairman, J. B. CRUNDWELL

1:30—New Research in Feline Pneumonitis and Panleukopenia, R. V. Johnston.

2:15—Oxygen Therapy and Artificial Respiration, C. L. Blakely.

3:00—Basic Factors in Radiology for the Practicing Veterinarian, E. H. Gray.

4:00—Question Period.

7:30—CSVMA Banquet.

California Veterinary Alumni Meeting

Tuesday, January 29, 5 P.M.

Auditorium—Veterinary School

Reorganizational and Business Meeting.
Presentation of Dr. George Hart's portrait to
the School of Veterinary Medicine. All
Alumni urged to attend.

GRAM

VETERINARY MEDICAL ASSOCIATION CONFERENCE

Michael L. Stowe; *Co-Chairman*, John F. Christensen.
H. Houchin, Robert B. Frater.

COLLEGE OF VETERINARY MEDICINE, DAVIS

TUESDAY, JANUARY 29, 1957

LARGE ANIMAL SECTION

Room 176, Home Economics Building

Morning

Chairman, R. B. FRATER

8:45—Film.
9:00—Current Status of Epizootic Bovine Abortion in California, J. A. Howarth.
9:30—Parasitism, a Herd Disease—Its Control a Herd Problem, D. C. Boughton.
10:15—Panel on Sheep Diseases, Blaine McGowan, Gordon Shultz, R. D. Westfall, Stuart M. Foster, R. S. Dickson.
11:15—Diagnostic Problems in Cattle Practice, O. R. Adams.

Afternoon

Chairman, J. F. CHRISTENSEN

1:30—The Veterinarian's Position and Opportunities in California Cattle Feeding Operations, A. L. Tietze.
2:00—The California Mastitis Test and Its Application, O. W. Schalm.
2:30—Surgery for the Practicing Veterinarian, O. R. Adams.
3:15—Symposium on Sterility in Dairy Cattle, C. H. Ozanian, Moderator; R. V. Jessup, J. W. Kendrick, F. M. Brennan, R. W. Ormsbee.
4:00—Question Period.

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WEDNESDAY, JANUARY 30, 1957

GENERAL SESSION

Auditorium

Morning

9:00—The Present Rabies Situation in California, J. B. Enright, George L. Humphrey.
9:30—A New Era in Veterinary Medicine (Pharmacy Laws), R. L. Collinson.
9:45—Radiation Exposure Study Plan, Ben Dean.
10:00-12:00—Closed circuit TV—Large and Small Animal Demonstrations.

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WEDNESDAY, JANUARY 30, 1957

LARGE ANIMAL SECTION

Large Animal Surgery, Haring Hall

Afternoon

Chairman, BLAINE McGOWAN, Jr.

1:30—Discussion of Beef Cattle Fertility, with demonstration of the use of electronic ejaculator, Reuben Albaugh, Moderator; Perry T. Cupps, Richard B. Tangueman, M. A. Horning.
3:00—Dairy Cattle Sterility Clinic, C. H. Ozanian in charge.

SMALL ANIMAL SECTION

Auditorium

Afternoon

Chairman, RICHARD L. STOWE

1:30—Irradiation Effects in the Dog, A. C. Andersen.
2:00—Tour of Beagle Colony, with demonstrations, A. C. Andersen and staff.

Program of Western State Poultry Diseases Workers' Conference

Room 1204, Veterinary Science Building,
University of California, Davis

TUESDAY, JANUARY 29, 1957

Opening Remarks

D. V. Zander, D.V.M., Ph.D., Disease Research Laboratory, Heisendorf & Nelson Farms, Redmond, Washington.

Morning Session Chairman: R. D. CONRAD, M.S., D.V.M., Washington State College, Pullman, Washington.

9:00—Exotic Diseases of Poultry.

E. E. Jones, D.V.M., Livestock and Poultry Pathology Laboratory, San Gabriel, California.

Comments: E. R. Quorup, D.V.M., San Diego County Livestock Department, San Diego, California.

9:30—Epidemic Tremor.

K. Schaaf, D.V.M., Kimber Poultry Farms, Niles, California.

Comments: D. E. Stover, D.V.M., Bureau of Livestock Disease Control, Sacramento, California.

10:00—Intelligent Medication of Poultry Flocks.

S. L. Jamison, D.V.M., Poultry Pathology Laboratory, Turlock, California.

Comments: C. M. Hamilton, D.V.M., Western Washington Experiment Station, Puyallup, Washington.

10:40—Panel Discussion: The Business of Poultry Medicine.

Moderator: W. Brandner, D.V.M., Petaluma; S. R. Exstrom, D.V.M., Rio Linda; M. A. Nilson, D.V.M., Carmichael; R. E. Mountain, D.V.M., Yucaipa; B. Koch, D.V.M., Santa Cruz.

12:00—Luncheon—Business and Election of Officers for coming year.

Time, place, cost and other details to be announced.

Afternoon

Afternoon Session Chairman: R. W. WICHMANN, D.V.M., Department of Poultry Pathology, University of California, Davis.

1:30—Diagnosis of Newcastle Disease Using the Aqueous Humor of Eye.

D. S. Clark, D.V.M., Livestock & Poultry Pathology Laboratory, San Gabriel, California.

Comments: R. A. Bankowski, D.V.M., Ph.D., Department of Poultry Pathology, University of California, Davis.

2:00—Differential Diagnosis of Respiratory Diseases.

J. Fabricant, D.V.M., Ph.D., Poultry Pathology Section, Cornell University.

Comments: L. G. Raggi, D.V.M., Ph.D., Department of Poultry Pathology, University of California, Davis.

2:45—Panel Discussion: Practical Diagnosis of Poultry Diseases.

Moderator: T. W. Jackson, D.V.M., Sacramento Livestock and Poultry Pathology Laboratory, Sacramento; J. D. Russell, D.V.M., Modesto; W. M. Dungan, D.V.M., Petaluma; G. N. Lukas, D.V.M., State Department of Agriculture, Livestock and Poultry Pathology Laboratory, Fresno.

3:45—Federal Research Laboratory at Iowa: Poultry Disease Research.

O. L. Osteen, D.V.M., Animal Disease Station, Beltsville, Maryland.

4:00—Panel Discussion: Poultry Practice in Industry.

Moderator: N. Casselberry, D.V.M., Cuter Laboratories, Berkeley; E. E. Stuart, D.V.M., Wess Frederen & Co., Lancaster; G. Hatcher, D.V.M., Dryden Poultry Farms, Modesto; D. V. Zander, D.V.M., Ph.D., Heisendorf & Nelson Farms, Redmond, Washington; W. F. Hughes, D.V.M., Kimber Poultry Farms, Niles.

Attendance at these meetings is limited to veterinarians, veterinary students, qualified publicly employed personnel or special guests. Names of guests to be invited must be in the hands of the Secretary for consideration and approval one week before the meeting.

AAHA Dinner

The American Animal Hospital Association Dinner will be held at 7:30 p.m., Monday, January 28, at the Hotel El Rancho. Please make reservations for the dinner when registering. All veterinarians invited. Dr. William K. Riddell is chairman.

Charge Now Made for Histopathologic Service

Since its opening, the School of Veterinary Medicine of the University of California has provided a free histopathologic service. This is not a primary university function, but one which may be conducted where no other public or private agency is available. During the past few years this service has grown to over a thousand cases annually. The large and increasing expense has so seriously raided our teaching and research funds that we must ask that this expense be shared by veterinarians using the service. A uniform charge of five dollars a case has been established to cover non-professional costs. It is desired that payment accompany the specimen to reduce billing costs. Please make checks payable to, "The Regents of the University of California," and address specimens to:

HISTOPATHOLOGY LABORATORY
School of Veterinary Medicine
University of California
Davis, California

The service provided is strictly a tissue pathology service, chiefly histopathologic. Please do not address to individuals, as the service is rotated among the pathology staff. Specimens and correspondence regarding microbiological, toxicological, parasitic and other procedures should be addressed to the appropriate department of the School of Veterinary Medicine, not to the Histopathology Laboratory.

It is anticipated that routine specimens from farm animal species will be sent, as usual, to the nearest State Laboratory established for the purpose.

Rabies specimens are not processed here, but should be dispatched directly to: Virus and Rickettsial Disease Laboratory, State Department of Public Health, 2151 Berkeley Way, Berkeley 4, California.

Send entire lesion if small. With larger lesions, select blocks not over $\frac{1}{4}$ x 1 x 1 inch from representative areas. It is well to include a bit of normal tissue at the edges of the lesion. Avoid areas with severe secondary changes, as the ulcerated surface of a tumor. Large specimens may be divided or incised to insure adequate fixation. Fix in 10% formalin (1 part drug store formalin and 9 parts tap water), using a volume ten times that of the specimen. Do not crowd specimens and please use a wide-mouth bottle. Do not freeze specimen as this causes extreme tissue distortion. Do not fix in alcohol. Please identify specimen adequately on the label. The more complete the history that is submitted, the better the indication we have for use of any special methods.

Dr. Boyd Serves as Consultant

Dr. Arthur G. Boyd, Assistant State Director of Agriculture, has returned to Sacramento after participating as a consultant to a United States Department of Agriculture committee named by the Secretary of Agriculture to investigate and report on research to control scrapie disease of sheep. Dr. Boyd was the only West Coast livestock sanitary authority selected to assist the committee.

The U. S. Department of Agriculture group to which Dr. Boyd is consultant is the scrapie disease research committee, Agricultural Research Service. Dr. W. A. Hagen, Dean of the Veterinary College, Cornell University, Ithaca, New York, is chairman. Other members are Dr. C. A. Brandy, Dean of the School of Veterinary Medicine, Urbana, Ill.; Dr. Hadleigh Marsh, Montana State Veterinarian, Helena, Mont.; Dr. W. L. Bendix, Virginia State Veterinarian, Richmond, Va.; Dr. K. F. Wells, Veterinary Director General of Canada, Ottawa; Dr. C. A. Mitchell, in charge of Dominion Animal Disease Research, Hull, Canada; Dr. B. T. Simms, Chief of Animal Disease and Parasite Research, Agricultural Research Service, U.S.D.A., Beltsville, Md.

The committee is assisted by a number of U.S.D.A. staff scientists.

Diamond Laboratories Completes New Plant

Diamond Laboratories recently completed a \$900,000 expansion program in Des Moines, Iowa, enabling them to double their capacity. With the completion of the new structure, the pharmaceutical and biological production, testing and research facilities are now consolidated.

The completed structure, with a 300-foot frontage, is located on a 30-acre plot in the southeast part of the city. The completed laboratories, with its modern production and testing facilities, are equal to any of its kind in the industry.

Diamond Laboratories manufactures a complete line of veterinary biological and pharmaceutical products. The company is exclusively owned by 110 practicing veterinarians, with its sales restricted to graduate veterinarians. H. L. Hansen is General Manager of the company, Karl A. Ratcliff, Director of the Pharmaceutical Division, Norman K. Jungk, Director of the Biological Division, and Ted R. Jamison is Manager of Diamond's Serum Plant, located in another part of the city.

Teunis Van Wyk, D.V.M., has joined the staff as Director of Biological Research, and C. Gordon Boylan, D.V.M., has joined as Director of the Biological Quality Control Dept. The H. C. Burns Co. has been appointed as distributor for Diamond Laboratories on the West Coast.

The California Mastitis Test

O. W. SCHALM, D.V.M., M.S., Ph.D., and D. O. NOORLANDER, B.S.

School of Veterinary Medicine, University of California, Davis



Collecting milk from individual quarters.



Draining off excess milk.



Adding reagent to milk in equal volume.



Brief rotary movement of paddle brings out reaction.

The California Mastitis Test (C.M.T.) is a new procedure for estimating cell content of milk. Irritation to mammary tissue, such as occurs in mastitis, results in an increase in the number of body cells in the milk. Chemical compounds belonging to the group of surface active agents containing long-chain hydrocarbon salts have been found to become visibly altered in the presence of native proteins of cellular origin. Such compounds can be used on milk to detect the increased cell content resulting from mastitis. This is the principle of the California Mastitis Test.

Bromcresol purple has been used widely in mastitis diagnosis to detect variations in pH of the milk. On fresh milk, this dye is especially useful for observing increasing alkalinity, which is characteristic of milk coming from glands in which secretion has been depressed by either inflammation or the natural drying-off process. Bromcresol purple is employed in the C.M.T. solution to provide a contrasting color with the milk and also to permit detection of milk having a significantly altered pH.

Procedure

The test was designed for use in the dairy barn on milk drawn directly from the individual mammary quarters. A white plastic paddle containing four shallow cups is employed. The cups are designated A, B, C, and D for easy identification of the individual quarter from which the milk was obtained. When used from the right side of the cow, the paddle is held by its handle and the proper cup is placed under the teat as the milk is collected, so that A=right front quarter; B=right rear quarter; C=left front quarter; and D=left rear quarter (upper left photograph). When used from the left side of the cow, the paddle is grasped by the side opposite the handle and milk is drawn from each teat into the respective cup in accordance with the letter designation given above.

Either foremilk or stripplings may be used. With foremilk, positive reactions tend to be more intense with the first streams of milk and to wane or disappear completely from succeeding streams. This is especially true of glands in which inflammation is limited. Strip-

pings tend to show a more intense reaction than foremilk; therefore, when results on foremilk are in doubt the test may be repeated on stripplings for verification.

The optimum amount of milk is that quantity that will remain in the receptacle when the paddle is tipped almost to the vertical, that is, about 3cc. The amount of milk required for the test is easily estimated as it is drawn from the teat. If one or more cups contain more milk than is needed, the paddle is merely tipped toward the vertical and the excess milk drains away (upper right photograph). Next, the paddle is tipped forward and downward to produce a pool of milk in each cup. The test solution is squirted into the pool of milk from a polyethylene wash bottle (lower left photograph). The stream of reagent is directed into the milk by beginning at one side of the pool and moving across to the other side. In doing this, the formation of bubbles should be avoided. When the white color of the milk has been entirely masked by the color imparted by the reagent, enough test solution usually has been added. The proportion of reagent to milk should be at least one to one. Too little of the test solution may preclude the full development of positive reactions, while an excess does not significantly interfere. The reagent and milk are mixed by gentle circular movement of the paddle in a horizontal plane (lower right photograph). The fluid is made to swirl, and it is during this motion that the positive reactions occur and are graded.

The paddle is made ready for use on another cow by emptying its contents and rinsing it in cold water. Rinse water contained in a pail may be used to wash the paddle following several tests before the water needs to be changed. When going from the rinse water to the next cow, the paddle should be tilted so that the cups will drain well. However, it is not necessary to dry the paddle before use again, for a trace of moisture does not affect the results.

Application of C.M.T. to the Mastitis Problem

The test was designed to be applied to either foremilk or stripplings at the side of the cow, but it may also be used on mixed milk from the entire udder (bucket sample) or even on bulk milk as delivered to the creamery. When used either on bucket milk or bulk milk, it is important to keep the milk cold and not let it become too old. Aging and/or the lowering of pH by bacterial action tend to destroy the factors responsible for positive reactions. Dry boric acid to provide a final concentration of 0.5 per cent may be added as a preservative to sample bottles for bucket or bulk milk studies. However, such samples should also be kept cold and the C.M.T. applied within 24-36 hours.

The dilution of mastitic milk with normal milk tends to reduce the intensity of positive

reactions. For this reason, reactions of lower score have more significance in bucket and bulk milk than in quarter-sample milk. A negative reaction with bucket milk does not necessarily mean that all quarters are free from inflammation, for a distinctly mastitic quarter may be contributing too little secretion to the total milk of the udder to cause the cell count of the mixed milk to be great enough to support a positive reaction. On the other hand, strong C.M.T. results with bucket milk definitely indicate that the entire milk is of poor quality. Strong reactions to C.M.T. in bulk milk would suggest a high level of udder irritations in the herd. When C.M.T. is used to screen large numbers of samples, as a routine laboratory procedure, it is convenient to use a plastic plate presenting ten cups and to mix the milk and reagent mechanically.

At the side of the cow, C.M.T. is of value in mastitis diagnosis and control, for it directs attention to individual mammary quarters that are secreting milk of high cell content. The results will provide convincing evidence that subclinical and chronic mastitis exist to a far greater extent than previously realized by the herd owner. Cell content is normally high at both extremes of lactation; therefore, C.M.T. should not be used before the third day after calving or on the secretion of the dry or drying-off udder.

Programs for the prevention and control of mastitis may be planned around the routine use of C.M.T. on all lactating cows. By using C.M.T. at weekly intervals and recording the results on a master sheet, it has been possible to detect mastitis in the incipient stages and to locate all quarters affected with chronic mastitis. When employed routinely, the test is a means of evaluating the effect on udder health of changes in management and of therapeutic agents used to treat mastitis. It is also useful to check for incipient acute mastitis when a cow goes off feed or shows other signs of a systemic reaction.

Traumatic injury to the udder by the milking machine occurs commonly. For this reason, C.M.T. should not be used as the sole means for selecting glands for therapy. The first step in alleviating widespread subclinical and chronic mastitis is to make certain that the milking machines are in good working order, that cows are stimulated for milk let-down before the machines are applied, and that the teat cups are removed individually as soon as milk flow ceases from the respective teat. Such a program will reduce the number of glands reacting to C.M.T. in herds where milking practices have contributed significantly to udder irritation.

Individual quarters that fail to improve following the introduction of better milking practices should be sampled for bacteriologic studies, and if pathogenic bacteria are found, the indicated therapeutic agent should be administered. Quarters that continue to produce

an alkaline and strongly C.M.T.-positive secretion, despite all effort to bring about improvement, might best be dried-off. A long period of rest before the next lactation may return the gland to better health.

In a mastitis control program where the goal is to eradicate *Streptococcus agalactiae*,

milk samples should be collected periodically from all cows, both lactating and dry, for the bacteriological detection of *Str. agalactiae*. In this kind of program, C.M.T. is also of value, for it directs attention to glands showing evidence of irritation, irrespective of cause.

Grading and Interpretation

Symbol	Suggested meaning	Description of visible reaction	Interpretation*
-	negative	Mixture remains liquid with no evidence of formation of a precipitate.	0-200,000 cells/cc 0-25 per cent PMN.
T	trace	A slight precipitate forms and is seen to best advantage by tipping the paddle back and forth and observing the mixture as it flows over the bottom of the cup. Trace reactions tend to disappear with continued movement of the fluid.	150,000-500,000 cells/cc 30-40 per cent PMN.
1	weak positive	A distinct precipitate but no tendency toward gel formation. With some milks the reaction is reversible, for with continued movement of the paddle the precipitate may disappear.	400,000-1,500,000 cells/cc 40-60 per cent PMN.
2	distinct positive	The mixture thickens immediately with some suggestion of gel formation. As the mixture is caused to swirl, it tends to move in toward the center, leaving the bottom of the outer edge of the cup exposed. When the motion is stopped, the mixture levels out again and covers the bottom of the cup.	800,000-5,000,000 cells/cc 60-70 per cent PMN.
3	strong positive	A gel is formed which causes the surface of the mixture to become convex. Usually there is a central peak which remains projecting above the main mass after the motion of the paddle has been stopped. Viscosity is greatly increased so that there is a tendency for the mass to adhere to the bottom of the cup.	Cell number generally over 5,000,000/cc 70-80 per cent PMN.
+	alkaline milk pH 7.0 or over	This symbol should be added to the C.M.T. score whenever the reaction is distinctly alkaline, as indicated by a contrasting deeper purple color.	An alkaline reaction reflects depression of secretory activity. This may occur either as a result of inflammation or in drying-off of the gland.
y	acid milk	Brom cresol purple is distinctly yellow at pH 5.2. This symbol should be added to the score when the mixture is yellow.	Distinctly acid milk in theudder is rare. When encountered, it indicates fermentation of lactose by bacterial action within the gland.

*PMN=Polymorphonuclear leukocyte

Pharmacy Law Study Committee Report

The Pharmacy Law Study Committee, composed of one representative from dairy, beef, poultry, sheep, hay, grain and feed dealers, California Pharmaceutical Association, and the CSVMA, recently appointed to study the animal drug problem existing under present law, met for the fifth time in Sacramento on November 1st. Guest observers and speakers included the president of the California Hay, Grain and Feed Dealers Association, members of the State Pharmacy Board and the Pharmaceutical Association, veterinary supply dealers, and a member of the dairy extension department of the University of California.

It was agreed to request a hearing before the State Pharmacy Board when it convenes in San Francisco the week of January 21st. The committee will ask for a final decision, and also a decision on how long the transition period will be until all illegal drug sales must cease. If all goes well, following that period, all dangerous drugs will be available only from, or on the prescription of a veterinarian.

Much work has been done on this problem and it is hoped that we may be able to report the exact status of the situation at a combined audience of large and small animal practitioners at the Midwinter Conference at Davis.

R. L. COLLINSON, D.V.M.
Representing CSVMA on Pharmacy Law Study Committee

Practical Aspects of Prescription Diets

PART II. The Intestinal Diet—I/D*

HOWARD C. TAYLOR, D.V.M., *Practitioner, Burbank, California*

The intestinal diet I/D is a soft, bland, easily digestible diet developed basically for treatment of intestinal disorders, especially those in which diarrhea is a prominent symptom. This diet has practically revolutionized hospital treatment of intestinal conditions. Diarrhea is one of the most common symptoms treated in small animal hospitals; particularly in the distemper ward where it is an ever-present problem. It is possible to minimize this problem by feeding I/D. The diet is not intended to take the place of medication, but rather to enhance the effectiveness of the medication and to help prevent relapses. The reason I/D is so effective in bowel conditions is that the ingredients used in compounding this diet have been carefully selected to yield maximum energy with the least possible stress on the intestine. For example, the two most irritating ingredients to an inflamed intestine are fiber and fat. In I/D the fiber content is less than 1% and the fat slightly over 1%. The proteins in this diet have been partially digested to prevent overworking of an already debilitated intestine. Then, too, the proteins have been chosen from those high on the biological scale so they will produce a minimum amount of nitrogenous waste products and therefore put less stress on the kidneys. Once we understand these technical reasons for the effectiveness of I/D, it is easier for us to select the proper cases for its application.

In addition to its hospital uses, I/D can be dispensed to patients going home before the bowel condition is completely corrected. The diet is also very effective for diarrhea following worming. It can be dispensed by the case for chronic or intermittent bowel conditions and fed continuously until the condition is completely under control. Our routine therapy for diarrhea is one gram of streptomycin solution administered orally. In most cases the streptomycin does an almost miraculous job of stopping the diarrhea, but if it is not followed up with a diet like I/D, the condition is apt to reoccur in 3 to 7 days. Caution should be observed in switching abruptly from I/D back to the normal diet. For example, after a bowel condition has been corrected with the use of I/D, a dog debilitated from this condition needs more fat in the diet than is provided in I/D. We use P/D to overcome this debility, but if the switch is made abruptly, the bowel may not tolerate the higher fat content of P/D and revert to the original condition. This eventuality can be handled by making a gradual transition from I/D to P/D.

The transition can be done at home or in the hospital by feeding three-fourths I/D and one-fourth P/D for a day or two, then gradually adding more P/D and at the same time cutting down on the amount of I/D until P/D is being fed exclusively. This system of gradual transition will save many embarrassing relapses.

The following is a typical case history where we had to feed I/D continuously to bring an intermittent diarrhea under control:

In September, 1953, a 5-month-old male Dalmatian was presented with a history of intermittent loose stools during the previous six weeks. The clinical examination revealed a thin run-down pup who still showed pep and spirit. The temperature was 102.5 and there was gross blood on the thermometer. The laboratory report on the fecal examination bore out the gross blood and showed undigested food remnants but no evidence of parasites or ova. Our diagnosis was chronic enteritis with possible ulcerative colitis. The treatment consisted of 1 gram of dihydrostreptomycin solution given orally in a No. 12 gelatin capsule and 300,000 units of aqueous suspension penicillin. One mg. Metropine* tablets were prescribed to be given at the rate of 1 tablet three times a day. The patient was returned four days later. There had been no bowel movement for two days, a normal stool the morning of the third day followed by diarrhea. The examination showed a normal temperature with no blood on the thermometer. The treatment was the same as before, omitting the penicillin. Seven cans of I/D were prescribed to replace the canned commercial dog food which had been the diet. This time the stool remained normal until the I/D was exhausted—a period of seven days. On the ninth day the dog was returned again with diarrhea. Treatment with streptomycin was repeated and a case of I/D was dispensed with instructions to feed one-third can three times a day and to return to the office when four cans were left in the case. The owner returned three weeks later to report that the stools had been normal and well formed since the last visit. At this time we dispensed a case of P/D with instructions for a gradual transition to the new diet. The owner voluntarily kept the dog on P/D for a period of three months with no further difficulty. This case report points up the necessity for feeding I/D continuously in chronic bowel conditions; that feeding the diet for an extended period is feasible and beneficial; and that the system of gradual transition prevents relapses.

*Hill Packing Co., Topeka, Kansas.

*R. J. Strasenburgh Co., Rochester, New York.

The uses of the intestinal diet are many and varied. There are a few more important indications that should be mentioned. I/D is the diet of choice after any surgical intervention of the gastro-intestinal tract. A fluid diet is recommended for the first day to empty the tract of any fermented food particles. On the second day a gruel of one-half canned milk and one-half I/D is fed four times a day in small quantities. Then gradually the milk is reduced until the animal is eating straight I/D.

An excellent choice for a puppy's first food after weaning is the half and half gruel. In this instance, the gruel should be fortified with fat in a ratio of 6 grams of fat to 94 grams of I/D. Since clients do not usually have gram scales, we recommend that they add one-eighth of a quarter pound of butter to one can of I/D, and feed warm.

The role of I/D in liver dysfunctions: We are not as adept at diagnosing liver disorders as physicians, but gradually we are becoming more aware of their existence. The more we delve into these liver conditions, the more we realize that corrective dietary therapy is the primary medical tool from which we may expect favorable results. In human medicine, fatty liver conditions are best treated with low fat, high protein and carbohydrate diets. The same is true in animals. I/D fits this picture by reason of its chemical analysis: Protein 10-11%, carbohydrate 20-22% and fat 1-1.5%.

There are many liver function tests available to aid us in arriving at a diagnosis of liver disorders. Perhaps the simplest routine test that will give us a lead on liver dysfunction, is the urinalysis; although this is not strictly a liver function test. If you get a positive bile reaction, you may suspect there is trouble in the liver. Since the liver has an unusually well developed ability to regenerate and dietary therapy is our best approach to encourage this regeneration, it follows that I/D is probably our best medical weapon in these conditions.

Veterinary Film Available

The Associated Serum Producers, Inc., has prepared a 16 mm sound film, 28½ minutes in length, which may be used for showing before civic clubs, youth organizations, or other gatherings.

It is titled "Veterinary Medicine as a Career," and is designed to increase the public's appreciation of the veterinarian, and the high standing of the profession.

Requests for the film, which is loaned free, must be made 30 days in advance of the date desired. It may be obtained through General Pictures Productions, 1702 Keosauqua Way, Des Moines, Iowa.

The Humane Touch

(Continued from page 27)

There were numerous meetings with city and county officials, and working relationships were established with state, city and county departments. The efforts of Mr. Dalmadge have even resulted in cities electing to adopt animal ordinances, as well as the construction of suitable shelters.

Here are some of the results of the Field Service: The City of Auburn rebuilt its inadequate lethal chamber; Hollister reconstructed its entire pound building; Crescent City and Del Norte County planned an entire pound system, including construction of a new building, installation of a proper record system of animals impounded and adoption of a more humane approach to the pound problem.

Pittsburgh, San Pablo, Chico, Antioch, Roseville, Gridley and the County of Solano were all helped with plans for shelters.

Manteca added individual dog houses to its kennels which formerly gave no shelter from the weather. Merced County added wooden dog beds to its concrete kennel runs. Grass Valley and Nevada City buried the hatchet and erected a joint shelter.

The City of Oakland took advantage of the Field Service of the SPCA by improving a sub-standard service for animals in its municipal pound.

Throughout Northern California the work steadily goes on—the humane touch which is helping to solve many a headache where the animal problem confronts the community.

Dr. Gooding to New Post

Appointment of Dr. C. L. Gooding as Veterinarian in Charge of the U. S. Department of Agriculture's Animal Disease Eradication Branch and Animal Inspection and Quarantine Branch activities in Sacramento, California, effective October 7, 1956, is announced by Dr. C. D. Van Houweling, Director of Livestock Regulatory Programs for the Department's Agricultural Research Service.

In his new assignment Dr. Gooding will be responsible for the administration of programs relating to the control and eradication of tuberculosis and brucellosis of cattle, scabies in sheep and cattle, bluetongue in sheep, and other major livestock diseases. He will also give general supervision over all Animal Inspection and Quarantine Branch activities in California.

Dr. Gooding has been Chief of the Animal Inspection and Quarantine Branch in Washington, D. C., since reorganization of the Department of Agriculture in January, 1954.

Examinations to be Held

The Board of Examiners in Veterinary Medicine announce that examinations will be held January 31, February 1 and 2, 1957, at the School of Veterinary Medicine, Davis.

Use of Tranquilizers on Dogs

Treatment of human mental and nervous disorders has been revolutionized in the last two years by the use of a class of drugs generally called tranquilizers or ataractics (ataractic from the Greek term meaning peace of mind). Perhaps inevitably, since these, like most other drugs, have been tested pharmacologically on dogs and other laboratory animals, their use in animal medicine has followed closely on their successes in the field of human therapy.

Anxious animals, fearful animals, aggressive animals—and injured animals which exhibit all three types of behavior—have been and are being treated successfully with the same tranquilizing drugs that are prescribed for their anxious, fearful, and aggressive masters. Within recent weeks, two such drugs, the first to have met food and drug administration requirements, have been produced specifically for animal use. They are:

1. Paxital, a phenothiazine derivative closely related to chlorpromazine. Produced by Warner-Chilcott Laboratories, it has exhibited excellent tranquilizing effects in dogs especially, and also in large animals. It is now being marketed through veterinary distributors solely for use by licensed veterinarians. It can be employed intramuscularly or orally.

2. Serpasil, a rauwolfia serpentina fraction. Rauwolfia has been used for centuries in human medicine for a variety of conditions. Produced by Ciba Pharmaceutical Products, Inc., for use in dogs, though usefulness in other animals is indicated. Serpasil is designed for oral use only.

These two drugs, and others not yet available in veterinary dosage forms, are currently being tested. Their employment in veterinary medicine in the future can confidently be predicted.

Of Paxital, it is known that administration prior to surgery produces a calming effect on even severely injured animals. Aggressive dogs are rendered cooperative and manageable; the fear of timid dogs are allayed.

A definitive report on clinical tests in dogs of virtually all available tranquilizers, human as well as animal norms, was made for annual convention of the American Veterinary Medical Association on October 17 in San Antonio, by Dr. Jack O. Knowles of Miami, Fla.

Dr. Knowles emphasized that the apparent primary value of the new drugs was that they provide "chemical restraints . . . much gentler and much kinder than physical restraint."

He also made the point that clients are pleased with the effects of the tranquilizers especially in the treatment of such ailments as chronic otitis.

Moreover, he added, the dogs themselves appear to react happily to the drugs. "These drugs," he said, "act to produce a sense of

LOCAL ASSOCIATION NEWS

The Mid-Coast VMA has elected the following officers: President, Dr. William C. Smart; vice-president, Dr. Richard G. Ainley; secretary-treasurer, Dr. W. H. Rockey, P. O. Box 121, San Luis Obispo.

* * *

Welcome to the newest Local Association of the CSVMA—the Santa Clara Valley VMA. Starting with 22 charter members the group meets on the last Tuesday of each month. Officers are: President, Dr. David E. Madsen; secretary-treasurer, Dr. Kay Beulley, 4th Street and Gish Road, San Jose.

* * *

The Alameda Contra Costa VMA held its regular meeting on October 31. A film, discussion and demonstration of various parenteral techniques was given through courtesy of Abbott Laboratories. There was also a discussion session on the health and accident group insurance plan offered to CSVMA members, which includes income protection.

* * *

The Bay Counties VMA elected the following officers at their November 13 meeting at the Sea Wolf Restaurant, Oakland: President, Dr. Irving M. Roberts; vice-president, Dr. Richard J. Tompkins; secretary, Dr. M. L. Boevers; treasurer, Dr. Tom D. Harris, Jr.

The chairmanship of the meeting was taken over by Dr. Charles Parshall. Dr. Goldston reported on the post AVMA convention to Mexico. Dr. Arburua mentioned that integration was at this time at a standstill, and that in his opinion there was a definite position for the Bay Counties VMA in the echelon of command of the AVMA. Dr. Parshall continued with highlights of happenings at the AVMA meeting.

Past presidents of the group were introduced, including Drs. Joseph Arburua, William W. Brimer, N. H. Casselberry, Nelson E. Clemens, Russell P. Cope, E. G. LeDonne, Sr., S. T. Michael, Hugh E. McClung, John McInnes, F. H. McNair, M. A. Northrup, Charles J. Parshall, B. F. Murray, J. W. Roberts and G. M. Simmons.

Executive Secretary Charles S. Travers attended the meeting.

euphoria in the recipient. The dog just honestly doesn't give a darn. The drugs do that by isolating the dog from his environment. He is transported to his own private cloud number nine."

Dr. Knowles is currently engaged in an exhaustive clinical research program with Paxital to delineate the areas of its greatest usefulness in treatment of dogs.

Don't Miss the Closed Circuit TV Program

Wednesday, January 30, 10 A.M. - Noon

KBET-TV, Sacramento, will film the 2-hour demonstration of large and small animal techniques, with practitioners experienced in TV presentation. We are indebted to Allied Laboratories, Inc., Pitman-Moore Co. Division, for sponsorship of this first CSVMA closed circuit TV.

buy and use **CHRISTMAS SEALS** fight tuberculosis



Aureomycin Tests on Lambs

Aureomycin in the diet promoted lamb growth but did not reduce pneumonia in lambs in experiments conducted by veterinarians on the Davis campus of the University of California.

Best weight gains were obtained with a group of lambs fed 10 milligrams of Aureomycin per pound of pelleted feed throughout the fattening period. Different feed treatments were tested on five lots of 350 lambs each. In no case was the occurrence of shipping pneumonia or other illness and death affected by the different feedings.

Blaine McGowan, Jr., assistant professor in the School of Veterinary Medicine at Davis, said that shipping pneumonia is quite a severe disease to hope to control with a low level of antibiotics in feed. He added that some effect on the disease might be obtained with higher levels of feeding Aureomycin, though the higher levels tried in the test did not succeed. In promoting weight gains they actually proved inferior to the 10-milligram level.

"The two groups receiving 25 milligrams of Aureomycin per pound of pelleted feed," said McGowan, "gained very little better than the group receiving no antibiotic supplement in feed. Perhaps this level disturbed the ruminant digestive processes. Efficiency in using feed varied among the groups. Those showing the greatest gains showed the greatest efficiency, and vice versa."

The ration fed was a pelleted mixture of barley, molasses, and alfalfa, plus 1½ pounds of alfalfa silage daily per lamb. One lot of lambs received no antibiotic supplement; the second received 10 milligrams per pound of feed for 30 days only; the third received the same amount throughout the fattening period; the fourth received 25 milligrams of Aureomycin per pound of feed for 30 days only; the fifth received the same level, followed by 10 milligrams per pound of feed for the rest of the fattening period.

"Promoting weight gains through the use of antibiotics in feeds," said McGowan, "has become fairly widespread in recent years. It is already playing an important part in the production of milk, meat, and wool, and its use will continue to grow.

"The practice started in poultry and swine production, and some experimental work has been done in the nutrition of dogs and humans. No one can precisely pinpoint the actual reason for the benefits in growth reported for various antibiotics. It has been supposed that the bacterial populations in the intestine that tend to depress growth are reduced by the antibiotic. Actually their numbers are not reduced markedly or for very long."

The tests were conducted in a feed lot at Robbins, California.

OUT-OF-STATE NEWS

The annual meeting of the Arizona Veterinary Medical Association was held at the Arizona Inn, 2200 East Elm St., Tucson, Arizona, December 3rd and 4th, 1956.

* * *

At the Washington State VMA convention in Spokane, September 21-22, the following officers were elected: President, Dr. Irwin Erickson; president-elect, Dr. George D. Duby; treasurer, Dr. Harold E. Warsinske; secretary, Dr. W. Harris.

The most significant happening at the meeting was the adoption of a plan to go ahead with the selection and hiring of a full time executive secretary.

Dr. Ernest C. Stone, dean of the College of Veterinary Medicine, Washington State College, has been hospitalized for more than three months, and his condition is still critical.

Life Member Conti Writes

In the last issue of the JOURNAL we inadvertently omitted the name of Dr. L. F. Conti from the list of Life Members who had written "Thank You" letters.

As a matter of fact, Dr. Conti's was the first received, and we print it herewith:

"Dear Charley:

"Please excuse the delay in not acknowledging your recent letter relative to my election to Life Membership. I have been laid up or would have been more prompt.

"May I express my appreciation to the members of the Association, through you, for the honor. Looking back, some 39 years of association with the group has been a most pleasant one. The pleasure of having served on many committees and as its president during the first year of the last war brings back memories of good fellowship.

"I want to congratulate you for the big job you have done since your appointment. You have made things a lot easier for the officers and members, and have been a big factor in the growth and importance of the Association. It is my hope that even as a Life Member I may continue to be active and helpful, even in some small way.

"Sincerely,

"L. F. CONTI, D.V.M."

Faculty Wives to Be Hostesses

The Veterinary Faculty Wives will be hostesses to the wives of visiting veterinarians at a Luncheon and Fashion Show at the Hotel El Rancho, January 29, at 1 p. m.

Advance reservations may be made by writing Mrs. Norman Baker, 721 K Street, Davis, or Mrs. John Kendrick, 536 Anderson Road, Davis.

OPPORTUNITIES

This Opportunity Column is widely read and effective. If you sell your property, find the connection you desire, or enter into partnership through this column please notify us so that your request may be removed from our files.

For Lease

Modern Small Animal Hospital, equipped, with new 2-bedroom house. Fine opportunity for young, ambitious, experienced veterinarian. For information write to Clifford F. Langhans, 678 So. Bradshawe Ave., Monterey Park, or phone ATLantic 4-8405.

Position Wanted

Wanted, by recent graduate, assistantship with large animal or mixed practitioner, in central or northern part of California, with view to taking over practice. Scenic area with lakes and woods preferred. Box A50, THE CALIFORNIA VETERINARIAN.

Veterinarian Available

Veterinarian for relief work. 20 years' experience small animals. E. W. Kasel, 727 Malcolm Ave., Los Angeles. Phone GRanite 9-3491.

Veterinarian Wanted

Opening available to veterinarian with dairy experience to work in an established practice consisting of dairy clientele and small animal hospital. Substantial salary plus annual bonus. Dr. C. H. Ozanian, 10326 E. Artesia Blvd., Bellflower.

Applicants

Ben Paul Maurer, Escondido. Vouchers: F. B. Walker, Jr., Max W. Colton.

Arnold M. Snyder, Burbank. Vouchers: John M. Klar, Samuel Apt.

Nathan Pugatch, Alameda. Vouchers: Leo S. Goldston, F. M. Ziegler.

R. E. Graham, Concord. Vouchers: Leo S. Goldston, Floyd M. Ziegler.

Stanton E. Bower, Los Angeles. Vouchers: John R. Sujohn, Herbert I. Ott.

Speakers' Bureau

We are endeavoring to build up a Speakers' Bureau of the CSVMA. If you are willing to speak on veterinary matters before groups, please advise us. Subjects to be discussed, of course, should appeal to the general public.

The Women's Auxiliary to the CSVMA, Alameda Contra Costa branch, met at the home of Mrs. N. H. Casselberry for a luncheon and installation of officers. Mrs. Ray Duckworth installed the new officers. President, Mrs. N. H. Casselberry; Vice-President, Mrs. G. A. Railsback; Secretary, Mrs. R. Underwood; Treasurer, Mrs. H. Proctor.



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Group Disability

Your Executive Committee approved the new, expanded Group Disability program of the National Casualty Company at the recent convention in Los Angeles.

By now you have received full details of the expanded coverage, and your Executive Committee believes that this is an opportunity of tremendous importance to you.

REMARKABLE COVERAGE

Please consider the importance of this new plan which provides not only a tremendous saving to you, but the opportunity of blanketing in yourself and your dependents without evidence of insurability—***providing the necessary enrollment requirements are attained during the initial enrollment period.***

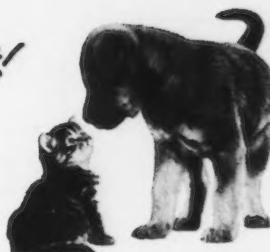
Fifty per cent of members must sign up to launch the program. It behooves all of us as practicing members of the CSVMA to take advantage of the extremely valuable offer now available.

Be Sure to Read the Brochure You Received—Then Act!

Executive Committee, CSVMA

A. Mack Scott	Richard Stowe
Russell Cope	Charles Ozanian
F. B. Walker, Jr.	A. M. McCapes
E. R. Braun	

Good news travels fast!



SQUIBB ADDS 5 TO ITS LINE!

SQUIBB IS PROUD TO ANNOUNCE the addition of five biologicals to its line of veterinary specialties. These new products utilize the most recent advances in the techniques of vaccine and serum production, and offer veterinarians unique advantages in the immunization of rabies, infectious hepatitis and distemper in dogs, as well as distemper in cats. All biologicals from Squibb are of the highest quality and have been tested under rigid laboratory and field conditions.

Like all Squibb products sold to veterinarians only, the five new biologicals are available through your wholesaler, or from your favorite veterinary supply house. For further information about these or other Squibb veterinary products, write SQUIBB, *Veterinary Products Department*, 745 Fifth Avenue, New York 22, N. Y.



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... both phenolized and chick embryo origin, for positive immunization against rabies for a period of one year. Supplied in 5 x 3 cc.—1 dose vials, 30 cc. vials and 50 cc. vials.

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... immediate passive immunity against canine distemper and infectious hepatitis. Supplied in 100 cc. vials.

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... modified live virus, chick embryo origin, for immunization against distemper in dogs. Supplied in 6 x 2 cc. — 1 dose vials.

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... single-injection vaccine for immunization against cat distemper. Supplied in 5 x 1 cc. — 1 dose vials, with disposable syringe.

YOUR EXPANDED GROUP DISABILITY PROGRAM

Our group plan was established in 1948. The plan proved highly successful, but as time went on it became apparent from the inquiries we received that the membership was interested in increased benefits for themselves and hospital and surgical benefits for their dependents.

Considerable study was given to the problem by both your association and the company, and as a result of this study the present plan evolved and is now being offered to you.

In group programs of this kind it is necessary to have the proper participation of the membership in order to effect the great savings for each member and at the same time give them the other features that group insurance offers.

So far the response to the letters mailed to you has been good, but it will be necessary to have the wholehearted support of the entire membership to make the plan an outstanding success.

The plan offers you opportunities now that may not be available again. Some of you could not buy this coverage for "either love or money."

Please act now while the coverage is available to you on such a favorable basis.

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Property Damage—Liability (Except Automobile)

\$5,000.00 each occurrence.
\$25,000.00 aggregate operations.
\$25,000.00 aggregate protective.
As per vet. liability-aggregate products.

Medical Payments (Automobile)

\$25,000.00 aggregate contractual.

Veterinarian's Malpractice Liability

1. On and Off Premises Liability, Injury of Person, Destruction of Property.
A. Breach of implied contract, restraint, assault, slander, libel, malicious prosecution, replevin of property.
2. Malpractice Liability.
A. Professional services rendered, mistake, error, etc.
3. Animals in Care, Custody and Control of Doctor and Employees.
A. Loss, theft, escape, self injury, burglary, robbery, etc.
4. Products Liability.
A. Goods or products, sold, handled, or distributed by insured.
5. Contracted Liability.
A. Lease agreement, etc.
6. Auto Non-Ownership Liability.
A. Protects insured if employees use own car for business purposes.
B. Automobile-hired, etc.
7. Comprehensive Personal Liability.
A. Cover the insured for his personal act, and that of his family, services of part-time domestic employees, etc.
8. COST FOR THE ABOVE \$88.00 PER YEAR.
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RABIES VACCINE

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MODIFIED LIVE VIRUS, CHICK EMBRYO ORIGIN, LYOVAC® VACUUM-DRIED

More potent, more stable.* Although immunity is greatly prolonged, no posterior paralysis has been reported.

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RABIES VACCINE, 'LYOVAC', is supplied in single-dose, 5 single-dose and 10-dose packages with sterile diluent.

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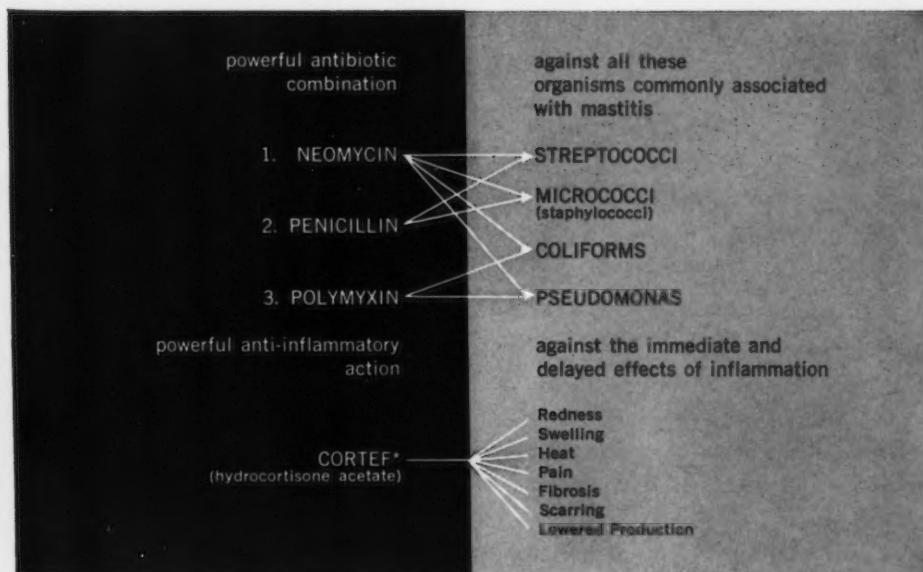
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By supplementing the hormone secreted by the parathyroid glands. This calcium-raising action of Parterol is produced by mobilizing calcium stored in the bones and increasing the absorption of calcium from the intestinal tract.
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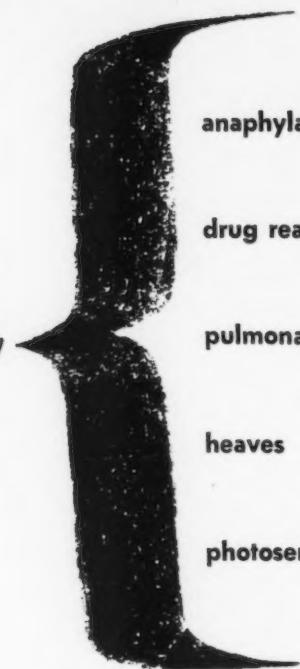
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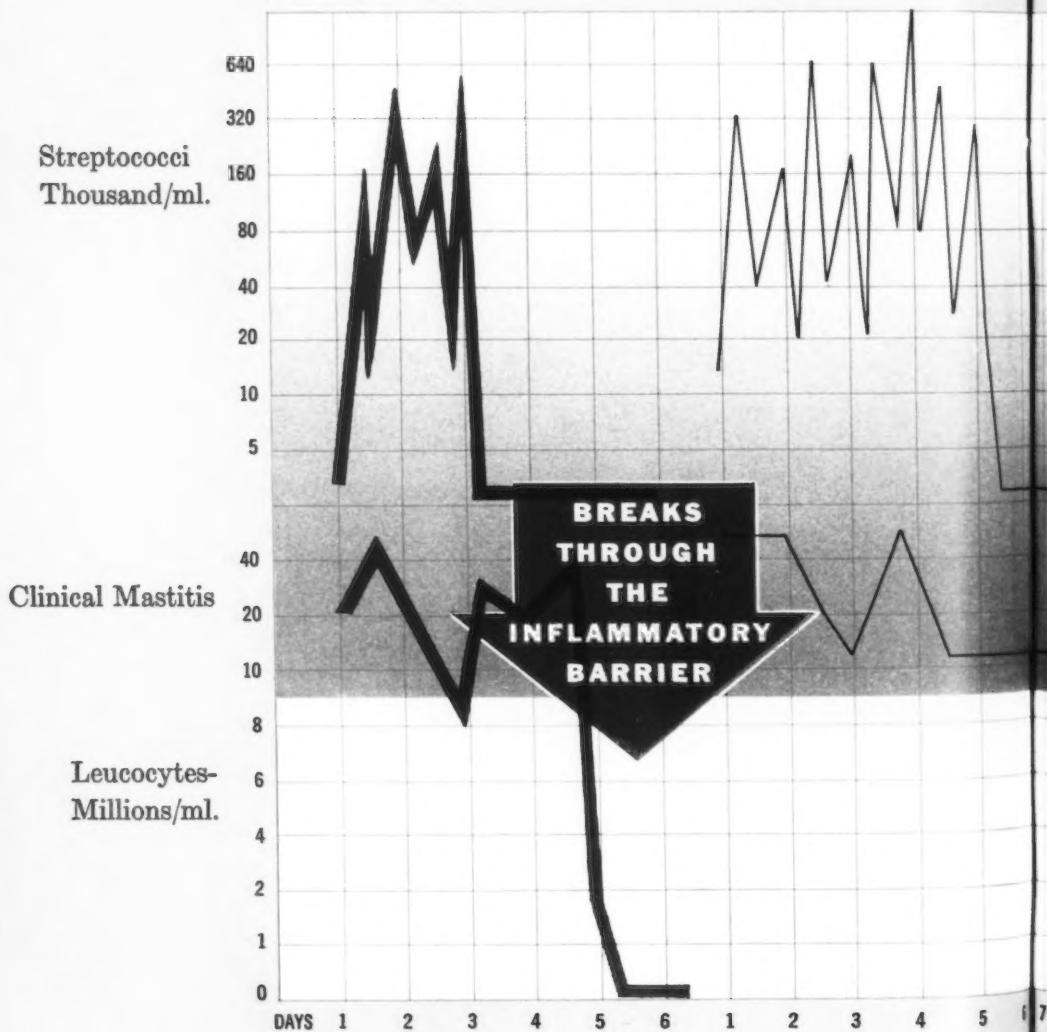
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**250,000 units Penicillin
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7.5 cc. tube, boxes of 12, 72 and 144.

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1 dose-5 x 1 dose-10 doses-100 doses

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AVIANIZED CANINE DISTEMPER VACCINE:

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A new therapeutic concept for diarrhea in calves and dogs



*... Slows peristalsis
... Destroys enteric bacteria*

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"... diphenemanil methylsulfate [acetylcholine blocking agent] utilizes a new concept in the treatment of diarrheas, that of inhibiting gastrointestinal motility"¹

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"... phthalylsulfacetamide is the sulfonamide of choice in the treatment of enteric infections in veterinary medicine"^{2,3}

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"... in calves, two 300-mg. boluses per day, from one to three days, was sufficient ... to bring about an uneventful recovery"¹

well tolerated

"... produces no observable systemic side effects or sensitivity reactions"¹

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Indications

IN CALVES: calf scours

IN DOGS: uncomplicated diarrheas, persistent gastrointestinal disturbances

Packaging:

LARGE ANIMALS — VARITON Compound Boluses, jar of 24 boluses; 6 jars, 24 boluses per jar

SMALL ANIMALS — VARITON Compound Tablets, bottle of 100

1. Christian, A.B.: Variton and Variton Compound in the treatment of bovine diarrhea. *N. Am. Vet.* 37:557 (July) 1956.

2. Rogoff, G.: Phthalylsulfacetamide (Thalamyd) in veterinary medicine. *J.A.V.M.A.* 177:220, 1950.

3. Williams, K.T.: Treatment of canine diarrhea. *Vet. Rec.* 66:283, 1954.

4. Christian, A.B.: Phthalylsulfacetamide as a treatment for infectious calf scours. *J.A.V.M.A.* 126:185, 1952.

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B	10%	medium	very poor
C	7%	fine	fair
D	13%	medium	very poor
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maximum tissue concentration for dependable immunity High tissue content of Jen-Sal Rabies Vaccine provides high vaccine virus titres for maximum immune response. In critical tests, dogs vaccinated with a standard 3 cc. dose of Jen-Sal vaccine consistently withstood virulent street virus challenge.

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